NI 43-101 Technical Report

Geology, Exploration Programs and Results from the Dewdney Trail Property with Recommendations for Further Exploration

Fort Steele Mining Division, British Columbia

NTS 82G/12

UTM Zone 11, 603842E, 5512504N

For

Property operator:
1532063 Alberta Inc.
Suite 3700, 1 King Street West
Toronto, Ontario M5X 1C9

By

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December 3, 2010

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1.0 Summary

- Ruby Red Resources Inc. (now named *AG Spirit Gold Inc*. and referenced as such in this report) entered into an agreement with 1532063 Alberta Inc. (Alberta Inc.) whereby the latter company may earn up to 80% in certain of AG Spirit Gold's mineral exploration properties in the Rocky Mountain area of southeastern British Columbia by completing a series of cash payments and work commitments over a 4 year period; once vested, Alberta Inc. can earn up to 100% interest subject to a 2% NSR with a buyback of 1% should SG Spirit Gold decide not to participate in funding future exploration. These properties have been consolidated by 1532063 Alberta Inc. into a single entity called The Dewdney Trail Property.
- RIT Minerals (RITM) Corp. was retained by 1532063 Alberta Inc. to prepare a NI 43-101 compliant report on the Dewdney Trail Property (Property).
- The Property is located in the Hughes Range of the western Rocky Mountains, adjacent to the Rocky Mountain Trench at Kimberley, British Columbia.
- The Property contains: 1) large-tonnage sediment-hosted vein-type (SHV) gold prospects called Spirit, Tac and Lewis; 2) vein-type prospects called Jack Leg, and 3) a skarn and stockwork Cu-Au (porphyry?) prospect called Dew Drop.
- In the author's opinion, exploration emphasis and expenditures should focus on the Spirit and Lewis showings; their merits are the focus of this report.
- At the Spirit Showing, visible gold is hosted by quartzite (arenite and wacke) within the upper part of Mesoproterozoic Aldridge Formation; the host quartzite is part of a slope assemblage of strata that occupies the change-in-facies between the shallow water platform assemblage on the east and the rift axis assemblage on the west (where the Sullivan mine is situated).
- Rock samples containing gold concentrations to 18 grams per tonne highlight a mineralized unit approximately 100 m thick and more than 5 km long called the Spirit quartzite.
- This target unit is pervasively altered (sericite-quartz-pyrite-Fe oxide-Fe carbonate) and veined throughout its length and width.
- Veins are closely spaced (centimeter scale), have widths ranging from millimeters to centimeters, and range in length from centimeters to a metre.
- There is a preferred vein orientation perpendicular to bedding, an observation that should be taken into account when planning a drill program.
- Multiple episodes of vein production are evidence that the mineralizing system was resurgent.
- The combination of stratigraphic setting (permeable quartzite sandwiched between argillite aquatards) and structural setting (a steep, overturned, west-dipping rock panel detached above the major east-verging Lussier thrust fault) account for both the focus of fluid flow and the resurgent nature of the fluid system.
- The southern portion of the Spirit Showing occupies a large catchment bowl from which substantial material has been removed by alpine glaciations and stream erosion; as such, it represents a likely source for the Wild Horse River gold placer deposits located 8 km downstream and from which 1.5 million ounces of gold have been recovered.

- The Property is part of the regional Kimberley gold trend, a zone of anomalous gold concentrations which can be traced approximately 100 km from near the town of Creston, east northeast across the Purcell Mountains to the Rocky Mountain Trench at Cranbrook, and from there northward along the Hughes Range of the western Rocky Mountains.
- The Kimberley gold trend reflects dilation and focused fluid flow along structures developed above the Vulcan tectonic zone, an east-west trending basement feature that controlled Proterozoic and Paleozoic basin geometry, as well as the configuration of Jurassic and Cretaceous thrust faults and folds.
- Of the five areas or showings where gold mineralization is known on the Dewdney Trail Property: Spirit, Tac, Lewis, Jack Leg and Dew Drop, the Spirit and Lewis showings exhibit many features in common that support potential for a large tonnage deposit of the SHV (sediment-hosted vein) type. In the author's opinion, these two showings have significant promise and should be the focus of future exploration because they exhibit strong, consistent and large-scale alteration zones in stratigraphic units having significant thickness (100+ m) and strike length (5+ km); fracture density is cm to dm scale and uniform ; and gold anomalous gold concentrations occur throughout the stratigraphic unit..
- The Property has merit and the following staged approach to exploration is recommended:
  - Re-process newly acquired geophysical data to identify specific targets along the trend of the Spirit quartzite, and elsewhere on the Property as appropriate;
  - prospect, channel sample and trench these exploration targets;
  - bulk sample to test for and evaluate the "nugget effect", and to determine appropriate drilling protocols; and
  - drill the most viable targets to establish grade and size.
  - map remainder of Property, investigate any geophysical anomalies derived from analysis and reprocessing of newly acquired data, and follow up with focused soil and rock sampling programs in and around geologically- and (or) geophysically-defined targets.

2.0 Introduction and Terms of Reference

Alberta-registered numbered company 100928_1532063 (the Company) engaged RIT Minerals Corp. (RITM) to report on the geology of their Dewdney Trail Property (the Property), which comprises 35 mineral tenures covering approximately 13,044 hectares located in the western Rocky Mountains of southeastern British Columbia adjacent to the Rocky Mountain Trench. The town of Kimberley is located approximately 30 km due west. The author, R. I. (Bob) Thompson, PhD, PEng, President of RIT Minerals Corp., spent sixteen days mapping and examining the property in July and August 2009.

The purpose of this report is to assess the technical merit of the Dewdney Trail as a qualifying property suitable to facilitate the Company's listing on the TSXV Exchange.

2.1 Terms of Reference

The author is not associated or affiliated with the Company or any related companies. Fees paid to RITM Corp. for the field work done and the preparation of this Technical Report are not dependent in whole or in part on any prior or future engagement or understanding resulting from the conclusions of this report. The fees are in accordance with industry standards for work of this nature.

All of the figures in this report were prepared by or under the direction of the author. The sections of this report that discuss geochemical aspects of the Property rely in part on unpublished analyses of rock and soil samples collected by contractors and analyzed by ACME Laboratories Ltd. an accredited third party, independent laboratory. Sections of the report that describe regional-, local- and property-scale geology rely on (17 days) field work undertaken by the author and on the following reports:

> Höy, T., 1993, Geology of the Purcell Supergroup in the Fernie West-Half Map Area, Southeastern British Columbia: BC Ministry of Energy, Mines and Petroleum Resources Mineral Resources Division, Bulletin 84, 157p.
>
> Ransom, P., 2006, NI 43-101 Technical Report on Year 2005 Property (Mineral Claims) Acquisition by Ruby Red Resources Inc. from Supergroup Holdings Ltd. http://www.sedar.com/DisplayCompanyDocuments.do?lang=EN&issuerNo=00024735
>
> Thompson, R.I., Glombick, P., Erdmer, P., Heaman, L.M., Lemieux, Y. and Daughtry, K.L., 2006, Evolution of the ancestral Pacific margin, southern Canadian Cordillera: Insights from new geological maps, *in* Colpron, M. and Nelson, J.L., eds., Paleozoic Evolution and Metallongeny of Pericratonic Terranes at the Ancient Pacific Margin of North America, Canadian and Alaskan Cordillera: Geological Association of Canada, Special Paper 45, p. 433-482.

This report presents: 1) a description of the general geological setting of the Property, a description and analysis of the geological mapping carried out by the author, and a structural interpretation based on structure cross-section preparation; 2) an evaluation of geochemical and geophysical data obtained from the property in 2009 and 2010; 3) an evaluation of the merits of the Property; and 4) recommendations for future exploration. All reports reviewed by the author are listed in the references at the end of this report.

The author is familiar with the Property having spent 16 days during the period July 1st to August 30th, 2009 mapping and evaluating it. As well, he spent several weeks in 2009 mapping and evaluating nearby properties underlain by similar rocks in the Purcell Mountains. The author was also responsible for regional mapping and geological compilation in the Vernon (82L) and Lardeau (82K) map areas in the period 1993 – 2006 (e.g. Thompson et. al., 2006 and references therein).

All measurement units used in this report are metric. The coordinate system in use on the Property and on all maps is UTM zone 11.

There was no limitation placed on the author with respect to information regarding 1532063 Alberta Inc. during preparation of this report.

2.2 Abbreviations and Acronyms

A list of frequently used acronyms and abbreviations follow:
AAS: atomic absorption spectroscopy (laboratory analytical procedure)
Ag: silver
As: arsenic
Au: gold
Bi: bismuth
cm: centimetre
Cu: copper
g/t: grams per tonne
Ha: hectare
Hg: mercury
ICP: Inductively Coupled Plasma (laboratory analytical procedure)
kg: kilogram
km: kilometre
m: metre
masl: metres above sea level
mm: millimetre
ppb: parts per billion
ppm: parts per million (34.286 ppm equals one troy ounce per short ton)
Pb: lead
tonne: metric ton (1000 kg)
Zn: zinc

3.0 Reliance on Other Experts

The author has not personally reviewed land tenure, is not a Qualified Person with regard to land tenure in British Columbia, Canada, and has not independently verified the legal status or ownership of the property or any underlying option agreements. It is the author's understanding that *SG Spirit Gold Inc.* (formerly Ruby Red Resources Inc[1]) is the sole registered owner of the mineral claims described herein, and that the claims are free and clear of all Crown-granted claims (ref. section 4); it is also the author's understanding that SG Spirit Gold Inc. entered into an agreement with *1532063 Alberta Inc.* (Alberta Inc.) whereby the latter company may earn up to 80% by completing a series of cash payments and work commitments over a 4 year period; once vested, Alberta Inc. can earn up to 100% interest subject to a 2% NSR with a buyback of 1% should SG Spirit Gold decide not to participate in funding future exploration: ref.

[1] The TSX Venture Exchange accepted filing documentation with respect to the name change from Ruby Red Resources Inc. to SG Spirit Gold Inc. The name change took effect October 20, 2010.

http://www.marketwire.com/press-release/Ruby-Red-Resources-Enters-Into-Option-Agreement-on-Certain-East-Kootenay-Properties-TSX-VENTURE-RRX-1320080.htm).

The results and opinions expressed in this report are conditional upon the aforementioned tenure and agreement information being current, accurate, and complete as of the date of this report, and the understanding that no information has been withheld that would affect the conclusions made herein.

4.0 Mineral Tenure Description and Location

The Dewdney Trail Property is roughly centered at: UTM Zone 11 603842E, 5512504N within NTS map sheet 82G/12 in the Hughes Range of the western Rocky Mountains (Fig. 4-1). The tenures occupy the Wild Horse River drainage on the south and east, the Lewis Creek and Wasa Creek drainages on the west, and the upper part of the Nicol Creek drainage on the north. The town of Kimberley is located 32 km to the west on the far side of the Rocky Mountian Trench; the town of Cranbrook is located 29 km to the south west; and the village of Wasa, on Wasa Lake, is 10 km to the west on the eastern margin of the trench (Figs. 4-1 and 4-2).

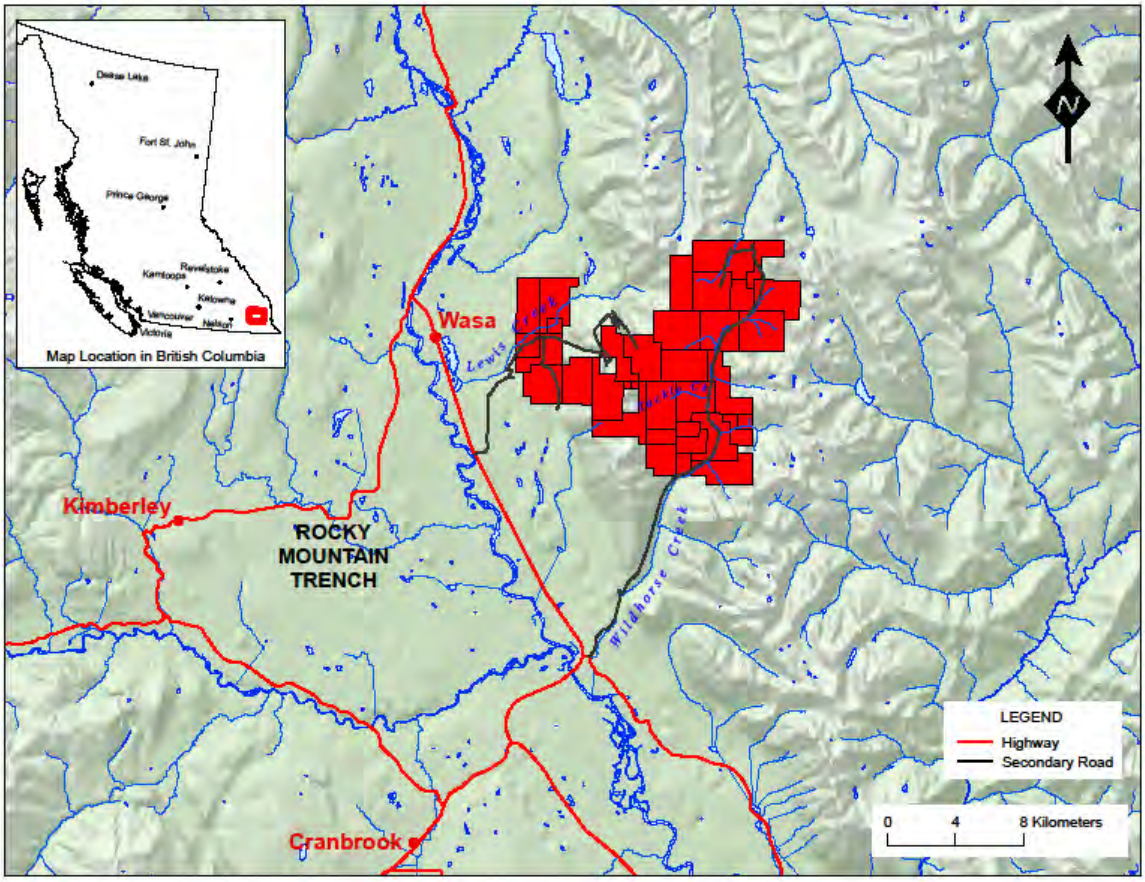

Figure 4-1: Location of the Dewdney Trail Property mineral tenures in the western Rocky Mountains of southeastern British Columbia, Canada.

Figure 4-2: Mid winter view east across the Rocky Mountain Trench from the town of Kimberley, southeastern British Columbia. The Dewdney Trail Property extends the width of the image. The Estella deposit is located above tree line left of the highest snowcapped peak.

The Property comprises 35 mineral tenures containing 13,044 hectares (Table 4-1). The mineral cell titles were acquired online and as such there are no posts or lines marking the location of the Property on the ground. In order to keep the mineral cell titles in good standing beyond the listed expiry dates, assessment work will have to be filed with the BC Mineral Titles Division before the anniversary date of each title (and/or group) in the amount of $4.00 per hectare of acceptable work in the first 3 years after acquisition and increasing to $8.00 per hectare after 3 years, plus a filing fee of $0.40 per hectare.

The author has checked the status of recorded ownership and expiry dates of the cell claims as listed in the Ministry of Energy, Mines and Petroleum Resources, Mineral Titles Division website. According to government records, all claims are in good standing until the expiry dates listed in Table 4-1: November 30, 2010 and December 1, 2010; however, the claims will be maintained in good standing beyond these dates according to the following agreement: Alberta Inc. has applied the cost of an airborne geophysical survey to the exploration expenditure requirements for the claims optioned from SG Spirit Gold; said survey was completed prior to the expiry dates (ref. section 9.3) and the necessary filing arrangements completed; the *good to date* column in Table 4.1 has yet to be updated in the government records.

The mineral titles are under option to 1532063 Alberta Inc. by SG Spirit Gold; Alberta Inc. may earn up to 80% interest by completing a series of cash payments totaling $250,000 and work commitments totaling $2.5 million over a 4 year period; once vested, Alberta Inc. can then earn up to 100% interest subject to a 2% NSR with a buyback of 1% should SG Spirit Gold decide not to participate in funding future exploration. The best knowledge of the author the Property is not subject to any back-in rights, payments or encumbrances.

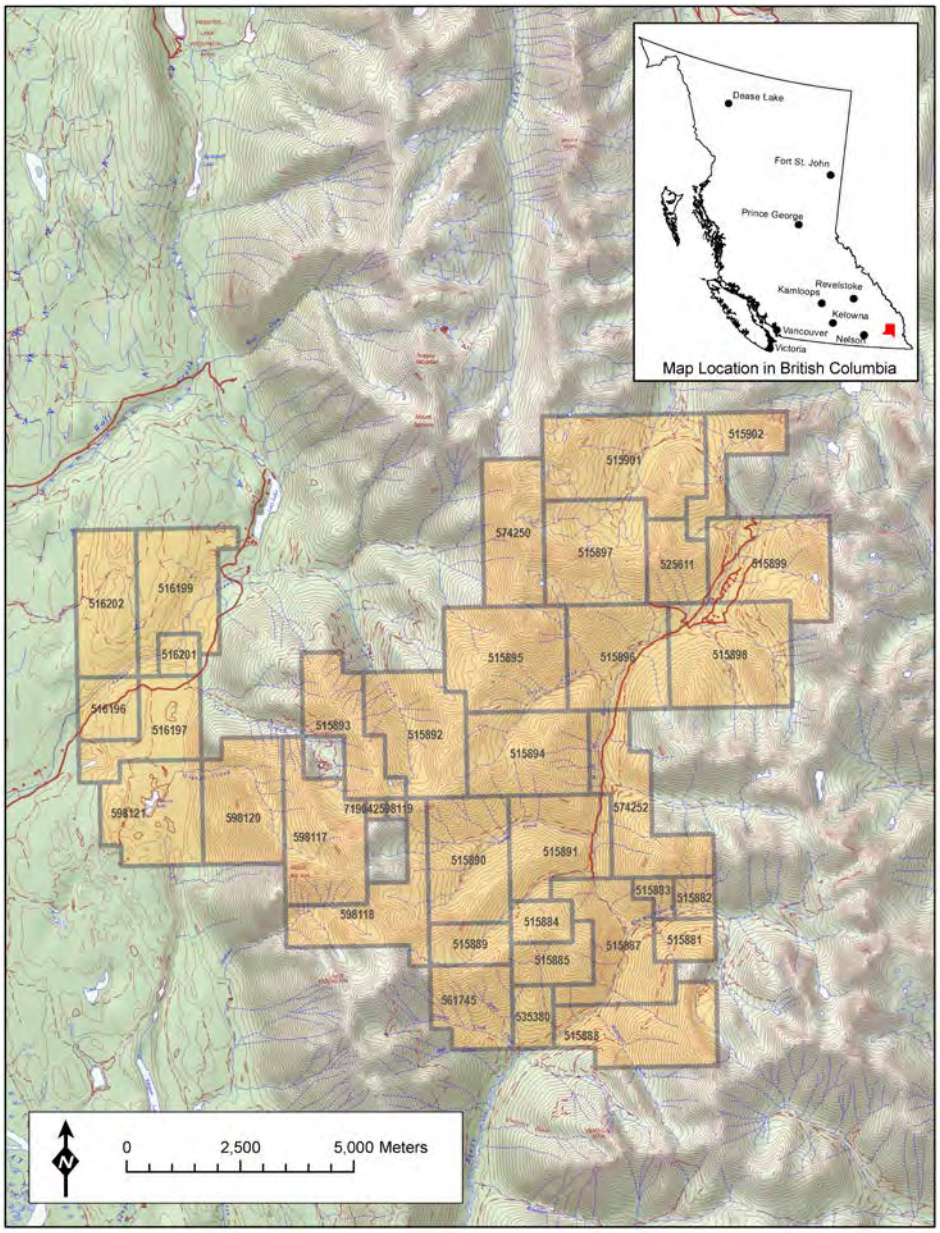

Figure 4-3: Digital elevation map showing location of the Dewdney Trail Property mineral tenures relative to the course of the Wild Horse River flowing south-west across the southeastern part of image (see also Fig.4-1) and the extensive network of secondary roads that traverse the property.

Tenure Number	Good To Date[2]	Claim Name	Owner	Area (Hectres)
515881	2010-12-01		145300 (SG Spirit Gold)	125.2860
515882	2010-12-01		145300 (SG Spirit Gold)	83.5090
515883	2010-11-30		145300 (SG Spirit Gold)	62.6330
515884	2012-11-30		145300 (SG Spirit Gold)	125.2800
515885	2012-12-01		145300 (SG Spirit Gold)	187.9480
515887	2010-11-30		145300 (SG Spirit Gold)	501.1660
515888	2010-11-30		145300 (SG Spirit Gold)	501.3320
515889	2010-12-01		145300 (SG Spirit Gold)	167.0550
515890	2010-12-01		145300 (SG Spirit Gold)	500.9600
515891	2010-11-30		145300 (SG Spirit Gold)	459.1720
515892	2010-11-30		145300 (SG Spirit Gold)	521.5520
515893	2010-12-01		145300 (SG Spirit Gold)	375.5330
515894	2010-11-30		145300 (SG Spirit Gold)	500.7280
515895	2010-11-30		145300 (SG Spirit Gold)	604.8080
515896	2010-11-30		145300 (SG Spirit Gold)	521.3890
515897	2010-11-30		145300 (SG Spirit Gold)	521.1640
515898	2010-11-30		145300 (SG Spirit Gold)	625.6620
515899	2010-11-30		145300 (SG Spirit Gold)	542.0470
515901	2010-11-30		145300 (SG Spirit Gold)	708.5440
515902	2010-11-30		145300 (SG Spirit Gold)	254.3570
516196	2010-11-30		145300 (SG Spirit Gold)	187.7560
516197	2010-12-01		145300 (SG Spirit Gold)	354.6790
516199	2010-11-30		145300 (SG Spirit Gold)	500.4170
516201	2010-11-30		145300 (SG Spirit Gold)	83.4270
516202	2010-11-30		145300 (SG Spirit Gold)	437.9150
525611	2010-12-01	WILD HORSE	145300 (SG Spirit Gold)	229.3240
535380	2010-12-01		145300 (SG Spirit Gold)	125.3270
561745	2010-12-01	SPIRIT WEST 2	145300 (SG Spirit Gold)	313.3040
574250	2010-12-01	TAC NORTH	145300 (SG Spirit Gold)	437.7401
574252	2010-12-01	WYALD NORTH	145300 (SG Spirit Gold)	500.8403
598117	2010-12-01	ROCKY 01-09	145300 (SG Spirit Gold)	521.8374
598118	2010-12-01	ROCKY 02-09	145300 (SG Spirit Gold)	459.3639
598119	2010-12-01	ROCKY 03-09	145300 (SG Spirit Gold)	20.8690
598120	2010-12-01	ROCKY 03-09	145300 (SG Spirit Gold)	480.0112
598121	2010-12-01	ROCKY 05-09	145300 (SG Spirit Gold)	480.0274
719042	2011-03-09		145300 (SG Spirit Gold)	20.8705

Table 4-1: Description of Dewdney Trail Property mineral titles.

[2] The costs of an airborne geophysical survey have been applied to the exploration expenditures on these claims for 2010 and will extend their expiry dates until at least November and December of 2011 (Government database yet to be updated); see text above and ref. section 9.3

There are five primary mineralized zones on the Dewdney Trail Property: Spirit Dream, Tac, Lewis, Jack leg and Dew Drop (Fig. 7-7). The characteristics and style of mineralization of each is described in sections 8.1.1-8.1.4. The two zones of greatest importance and interest at this time are: Spirit Dream and Lewis. They have the following characteristics that make them suitable as bulk tonnage targets: 1) stratigraphic continuity measured in kilometers; 2) large, intense alteration systems featuring sericite-quart-pyrite-Fe carbonate-Fe oxide; 3) cm-scale spaced fractures throughout the host unit; 4) evidence of resurgence; 5) gold distributed throughout the host unit. There are no mineral reserves calculated for the Property, and no workings or previous mining-related-infrastructure are present on the Property.

4.1 Permits

The author is not aware of any environmental issues specific to the Property.

Permits 1) to construct access trails, trenches and drill pads, and 2) to fall (cut) trees on and adjacent to proposed trails and pads were applied for and issued to SG Spirit Gold; documentation may require updating and extensions sought by Alberta Inc.; however the permits remain in place. Permits are not in place for the Lewis or other mineralized zones (Fig. 7-7) and will have to be applied for; however, given the long history of exploration in the region, the author does not anticipate any problems with the permitting process.

5.0 Accessibility, Climate, Local Resources, Infrastructure, and Physiography

Maps showing up-to-date road access for the region are available from Front Counter BC located in the Provincial Forest Services office in Cranbrook, British Columbia.

The Property is accessible using 2 major logging road systems off highway 93 where it parallels the eastern margin of the Kootenay River between Fort Steele and Wasa Lake.

At Fort Steele, and unsigned trunk road called Wardner-Fort Steele Road links immediately (500 m) with the Wild Horse River Forest Service Road which proceeds up the west bank of the river for more than 30 km (Fig. 4-4). The southern and eastern portions of the Property are accessed by following a spur at 7 km called Lakit Lookout and along spur roads off the main Wild Horse River road at Little Tackle and Tackle creeks.

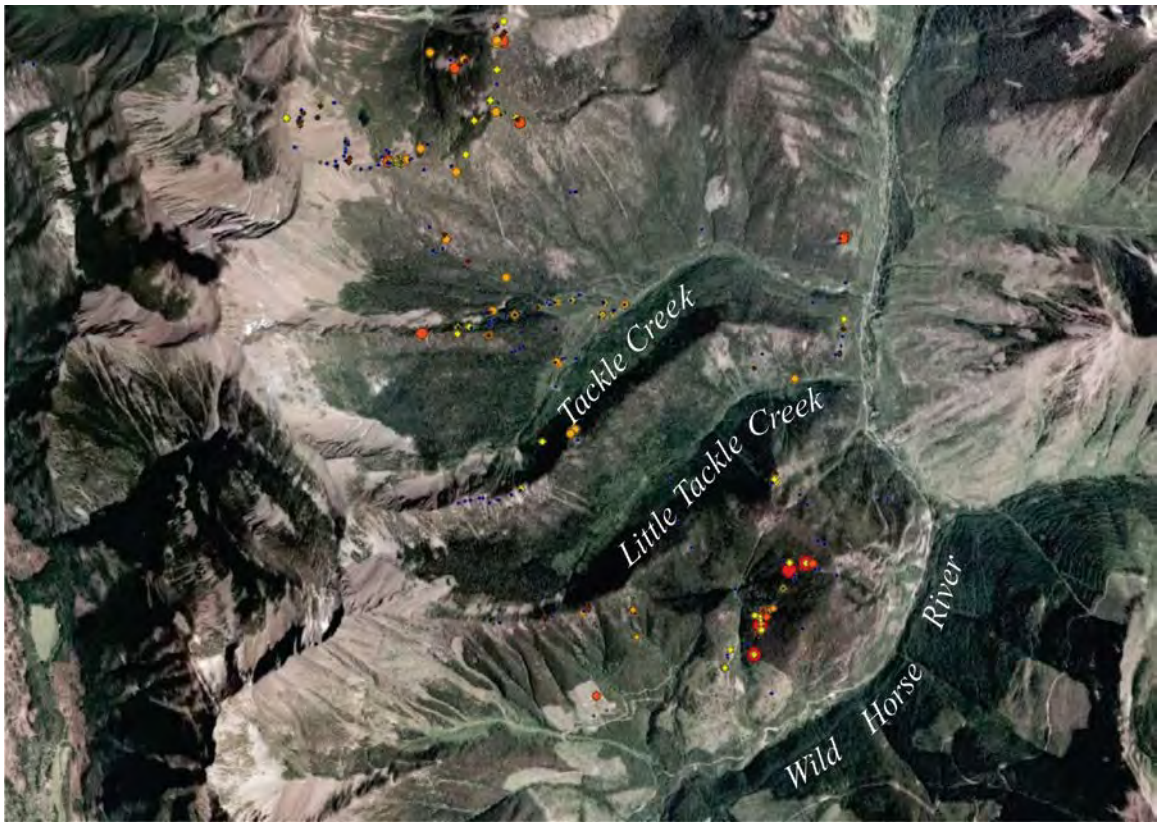

Figure 4-4: Aerial view of the north-to-south flowing Wild Horse River joined by east-flowing tributaries, Little Tackle and Tackle creeks. Dots represent gold values measured in rock samples: red is > 5 g/T; orange is > 1 g/T; yellow is > 0.5 g/T. The Spirit Showing, emphasized in this report, is represented by the northeast trending string of values (dots) in the lower right of the image. The rugged topography defined by deeply-incised V-shaped drainage is characteristic of the region.

At Wasa Lake, the Lazy Lake road connects to the Lewis Creek Forest Service Road which provides access to the western reaches of the claim block.

Given the steep terrain, off road traverses require significant physical effort rewarded by excellent rock exposure above tree line and agreeable mountains scenery.

The towns of Kimberley and Cranbrook are the nearest major supply centres where material and services adequate to explore the property can be found. Infrastructure resources are excellent and readily available. The Property is within a few km's of the hydroelectric grid; and the region has a long history of mining, hence personnel with heavy equipment, exploration and mining experience are available. The climate is benign, with agreeable Spring-Summer-Fall seasons and a temperate winter that sees relatively limited snow accumulations at lower levels, although accumulations may be substantial at elevation. Work in subalpine and alpine regions is seasonal, limited to June through mid October; at lower elevations the field season extends from late April until November.

The Property is underlain by moderate to rugged slopes cut by deeply incised, steep tributary streams. Elevations range from 700m to 2500 m (Fig. 4). Tree species are dominated at lower elevations by Lodgepole Pine (*Pinus contorta*) and Interior Douglas Fir (*Pseudotsuga Menziesii* var. *glauca*) with some Western Hemlock (*Tsuga heterophylla*) and Engelmann Spruce (Picea engelmannii) on north-facing, shady slopes; Subalpine Fir (*Abies lasiocarpa*) and Engelmann Spruce may be present at higher elevations; Western Redcedar (*Thuja plicata*) and Sitka Alder (*Alnus crispa*) may occupy moist, shaded areas, avalanche shoots and steep stream beds.

6.0 Exploration History

The Purcell basin is one of the most important metallotects in Canada, having produced 8.5 million tonnes of lead, 8 million tonnes of zinc, and 9 thousand tonnes of silver, nearly all of it from the Sullivan mine at Kimberley. Other small base metal producers include the Kootenay King, Estella and Bull River mines in the Hughes Range and the Stemwinder, North Star and St. Eugene mines south of the Sullivan mine in the Purcell Mountains; together these smaller deposits account for about 3 million tonnes of metal.

Placer gold provided the first exploration interest in the area starting in the mid to late 19th Century, with deposits on the Wild Horse River proving large and profitable. Perry Creek and the Moyie River, on the Purcell Mountains side of the trench, were also profitable and small operations on each of these water courses continue today, 150 years after discovery. Anecdotal information suggests at least 1.5 million ounces (46.7 million grams) of gold have been recovered; however, no corresponding lode deposits of any size have been discovered, suggesting the gold potential of the Purcell Basin has undeveloped potential.

Exploration on the Property prior to its acquisition by the SG Spirit Gold Inc., and subsequent option to 1532063 Alberta Inc. in 2010 consisted of: 1) prospecting; 2) follow-up (confirmatory) soil geochemistry; 3) rock geochemistry; 4) trenching, 5) data compilation into GIS format; 6) geological mapping; and 7) small drill programs on three of the five showings located on the Property: Tac, Jack Leg and Dew Drop. Details of the work undertaken, drill results and the styles of mineralization are provided in sections 8.1.1-8.1.4.

There are no historical mineral resource or reserve estimates for the Property.

Of greatest significance has been the recent discovery of the Spirit Showing, where anomalous gold, including visible gold, occurs in an immature quartz sandstone succession, called the Spirit quartzite, belonging to the upper part of the Aldridge Formation. Trenching and sampling yielded significant gold anomalies across the entire unit of the uniformly altered and fractured quartzite unit. It has not been drilled.

Discovery of the Spirit Showing discovery has two significant implications: 1) Gold in the quartzite succession may have been the source for the rich Whit Horse placer deposits

located 8.5 km downstream; and 2) the nature of veining, fracturing and alteration suggests gold occurs throughout the unit, making it amenable to bulk-mining procedures.

7.0 Geological Setting

The Property is contained within Mesoproterozoic siliciclastic rocks belonging to the Purcell Supergoup, specifically the Fort Steele, Aldridge and Creston formations. They are intruded by Late Cretaceous epizonal dikes, sills and stocks, most notably the Estella Stock. These quartz monzonite-granite-quartz syenite intrusions are compositionally variable; their megacrystic texture defined by potassic feldspar- and albite phenocrysts in a fine (often pyritic) groundmass denotes magmatic mixing (Höy, 1993).

The Purcell basin defines the major north-trending arm (today's coordinates) of the much larger Belt-Purcell basin, most of which resides in the United Sates (Fig. 7-1). During the initial rift phase of the Purcell arm, sedimentary fill comprised thick sequences of distal siliciclastic turbidites derived mainly from the south and west (Fig. 7-2). This succession, called the Aldridge Formation, is best exposed and developed in the Purcell Mountains, between the Rocky Mountain Trench and Kootenay Lake, the region that once formed the deep axial keel of the Purcell arm. East of the Rocky Mountain Trench in the northern Hughes Range – the subject area of this report – the distal basin Aldridge turbidites are replaced towards the east by shelf facies fluvial-deltaic quartzite (Fort Steele Formation) overlain by shelf and slope deposits comprising siltstone, argillaceous and calcareous siltstone, silty (calcareous) dolomite, silty mudstone and shale, orthoquartzite, and immature turbiditic sandstone (Höy, 1993; Höy et. al., 2000; this report). Hence, the Rocky Mountain Trench, a present day physiographic feature, marks the approximate boundary between basin and shelf (Fig. 7-2), and by inference, the locus of basin-margin growth faults (down to the west) that controlled local stratigraphic associations while serving to focus the flow of basin brines (Höy, 1993; Höy et. al., 2000).

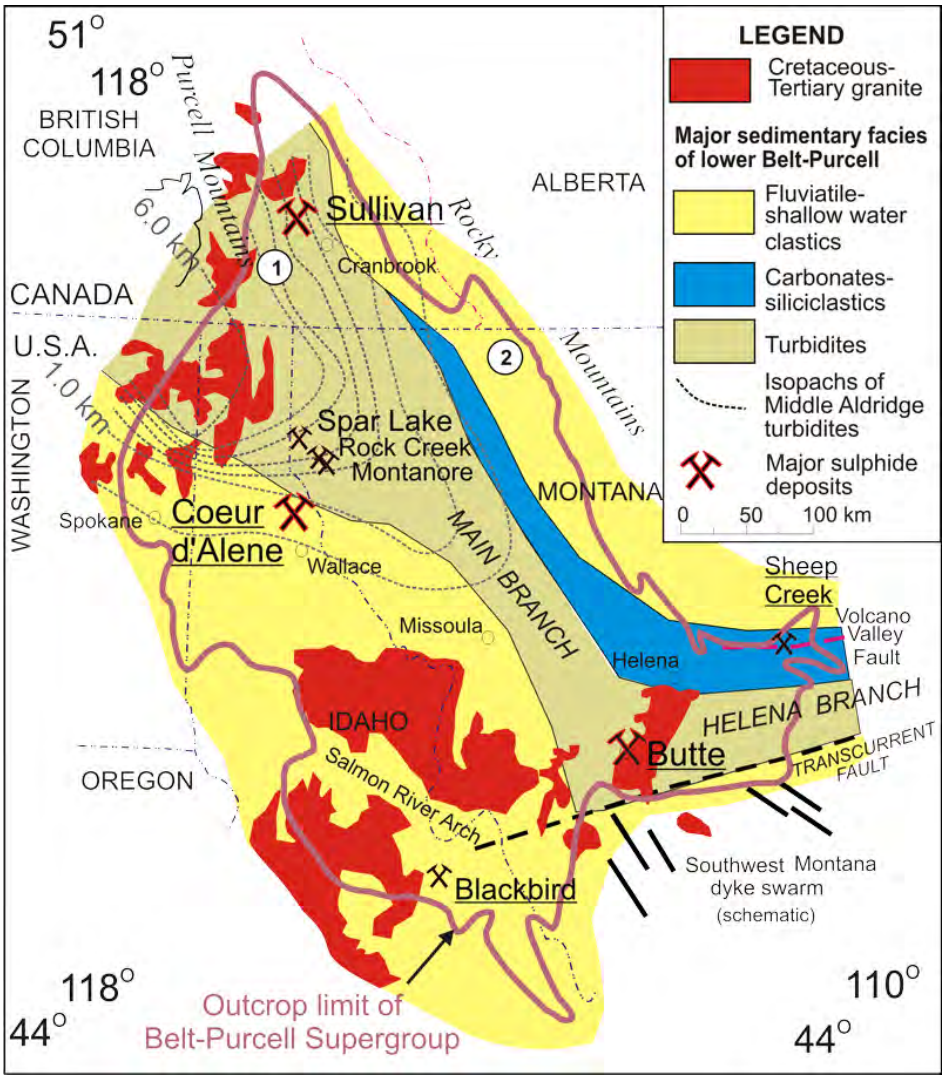

Figure 7-1: Regional character of the Belt-Purcell basin showing two major arms called Main Branch and Helena Branch. The Dewdney Trail Property (located beneath "S" in Sullivan, on northeastern margin of basin) occurs at the change in facies between shallow water clastic rocks and rift axis turbidite rocks.

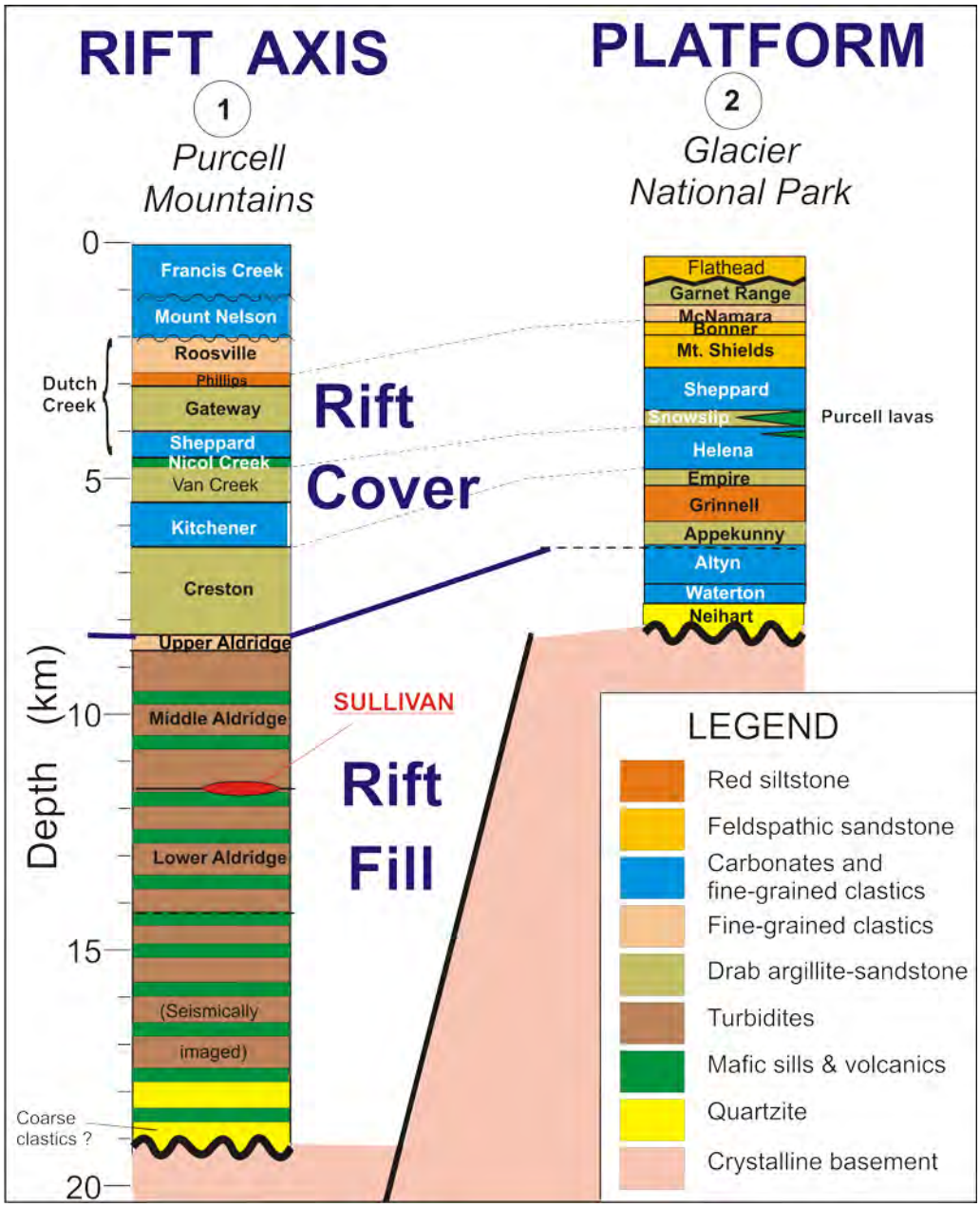

Figure 7-2: Transition from shelf to basin facies showing lateral changes in facies and thickness. The Dewdney Trail Property is located at the break-in-slope between shelf and rift basin axis. Relative to the Property, the Neihart Formation is the stratigraphic equivalent to Fort Steele Formation fluvial-deltaic quartzites, and the Waterton and Altyn formation carbonates are equivalent to the Aldridge Formation slope facies dolomitic siltstone, silty dolomite and argillite (from Lydon, 2004).

Structurally, the Main Branch overlies and intersects an important east northeast trending structure called the Vulcan Tectonic Zone (Ross, et. al., 1991; Ross, 2002; Price and Sears, 2000). It is interpreted as a zone of accommodation (accretion) between two Archean age crustal blocks called Medicine Hat on the south and Hearne on the north

(Fig. 7-3); a similar zone called the Great Falls Tectonic Zone, trends across Montana into Idaho and stitches together the Medicine Hat block with the more southerly Wyoming craton (Fig. 7.3; Foster et. al., 2006). The importance of this high-angle intersection between basin axis and basement boundaries cannot be overstressed. It is evident within the Purcell assemblage (and younger assemblages) that reactivation of east northeast trending basement structures influenced local sedimentary patterns; the structural interplay between basement and basin faults served to focus the flow of brines while creating higher order basins or depressions into which those brines could pool.

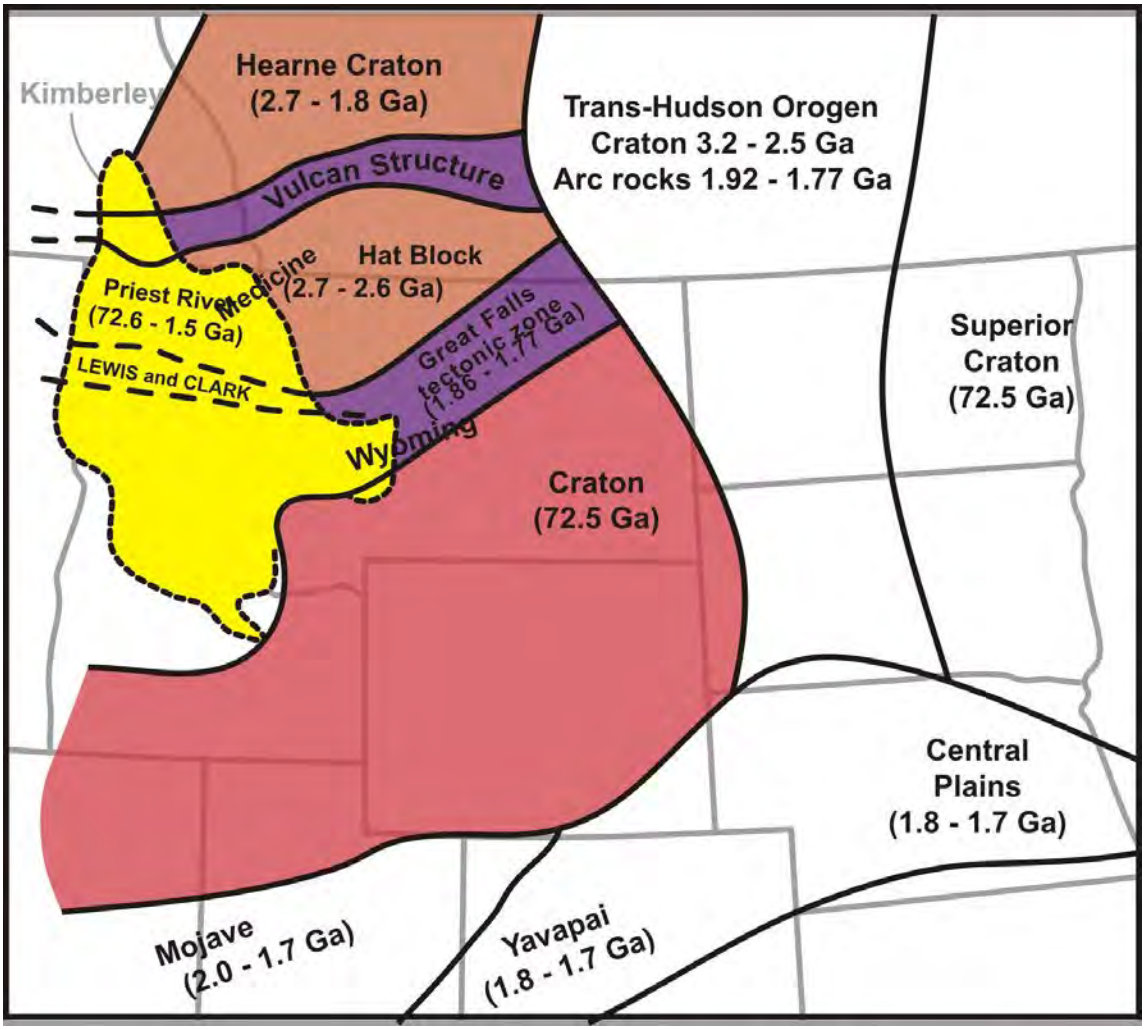

Figure 7-3: The Belt-Purcell basin is underlain by two major southeast trending tectonic zones, Vulcan and Great Falls, each of which played an important role in stratigraphic and structural evolution of the region. The Vulcan tectonic zone defines a zone of anomalous gold occurrences called the Kimberley Gold Trend. The Dewdney Trail Property is part of that trend.

The Purcell basin was succeeded by several younger basin sequences: Neoproterozoic Windermere basin; Lower Paleozoic continental margin sequence; Late Paleozoic-Mesozoic back-arc sequence (Fig. 7-4). Mountain building began in the Late Jurassic and persisted, intermittently, until the early Tertiary. The Purcell basin is part of a thrust and fold belt that accounts for about 150 km of west to east foreshortening atop a basal décollement (Price and Sears, 2000).

The influence of the Vulcan tectonic zone on Jurassic and Cretaceous faults and folds is evident in the nearly right-angle bend of major contraction (thrust) faults like the St Mary's and Moyie which strike east northeast in the Purcell Mountains, and north northwest in the Rocky Mountains (Hughes Range). This bend mimics an original one in the ancient Pacific continental margin (Sears and Price, 2000; Thompson, et. al., 2006). Of economic importance here is the requirement that a component of shear be associated with movement along faults that have curvilinear traces, and with it the potential for focused fluid flow along local zones of extension (releasing fault bends; Fig. 7-5). The result is the Kimberley Gold Trend, which follows the trace of the Vulcan tectonic zone across the Purcell Mountains and into the Rocky Mountains. The gold trend then turns abruptly north, parallel to the Hughes Range (and beneath the Dewdney Trail Property) in the Rocky Mountains. The Kimberley Gold Trend is approximately 100 km long and 30 km wide (Fig. 7-5).

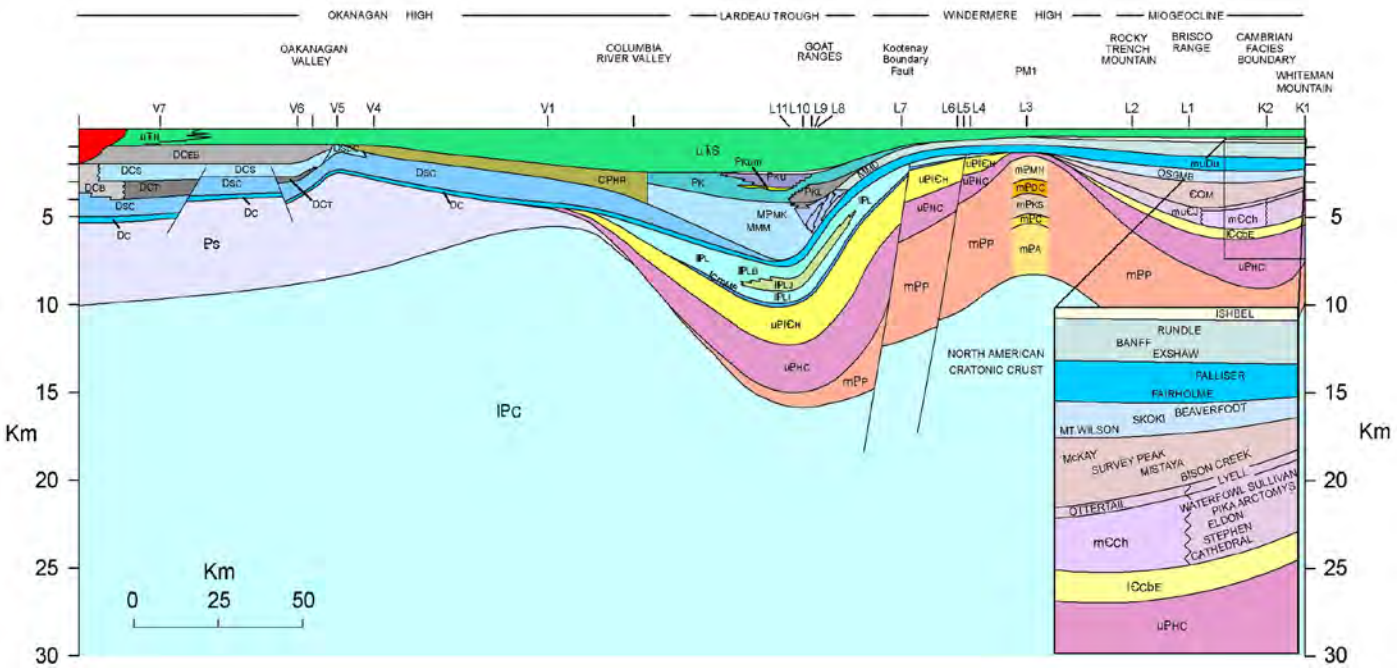

Figure 7-4: Regional stratigraphic cross section (not restored) showing the relative distribution and thickness of the major stratigraphic sequences making up the southern Canadian Cordillera (from Thompson et. al. 2006). mPP (orange) = Mesoproterozoic Purcell sequence; uPHC (pink) = Neoproterozoic Windermere assemblage; uPlCH (yellow) + lPL (turquoise) = lower Paleozoic ancient Pacific margin assemblage; D + M + MP + P + uTr (blue, grey, green) = upper Paleozoic-Mesozoic back-arc assemblage.

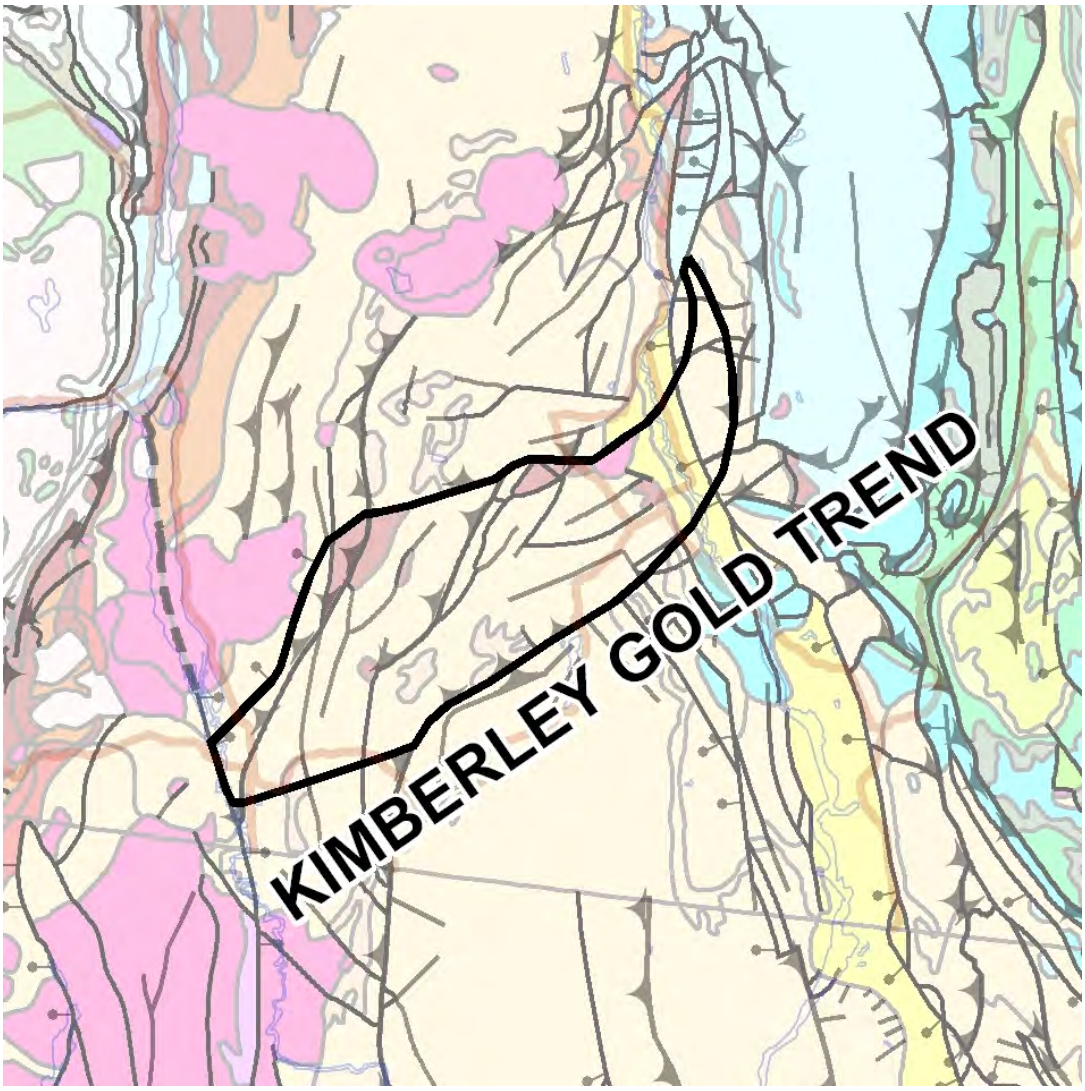

Figure 7-5: Kimberley Gold trend is approximated by the St. Mary's and Moyie faults to the northwest and southeast respectively, and the hanging wall block of the Lussier thrust fault in the western Rocky Mountains (east of the major Rocky Mountain Trench normal fault). The trend overlies the Vulcan (basement) tectonic zone (ref. Fig. 7-3) which influenced structural development and helped focus fluid flow during Jurassic and Cretaceous folding, faulting and intrusion.

The final chapter in geological evolution of the region was extension along west-side-down normal faults, the most major of which follows the locus of the Rocky Mountain Trench. Ancillary extension faults occur in the Hughes Range, and represent an important component of the geology reported herein.

7.1 Local Geology

The Dewdney Trail Property (Figs. 4-1 and 4-2) consists primarily of Fort Steele, Aldridge and Creston formations deformed into a large, east-verging, overturned, asymmetric anticline (Fig. 7-6). The fold, termed here the Lewis Creek anticline, is detached above the Lussier thrust fault; as such, it is the folded leading edge of a large thrust sheet which can be mapped from the Wild Horse River north, approximately 55 km, to Nine Mile Creek (about 7 km east of Columbia Lake; Leech, 1979).

Along the axis of the Property, the eastern limb is steep west-dipping and overturned; north of the Property, the anticline unravels to become upright. A half wave-length exceeding 5 km and an amplitude exceeding 3 km make this a large structure.

A 75 to 100 m thick succession near the top of the Aldridge formation (mP_{Asq} in Table 7-1) consisting of immature quartz-wacke (sandstone) is pervasively altered and fractured. It contains pockets of visible gold as well as anomalous gold values throughout (ref. Fig. 7-8 in map pocket at end of document); of particular interest are two showings, Spirit and Lewis (Fig. 7-7), where the quartzite is host to important gold anomalies. The succession has a uniform, steep, westward dip, and is sandwiched between less permeable and less brittle argillaceous map units; hence, its susceptibility to (hydraulic) fracturing allowed it to act as a fluid conduit, thereby explaining the density of fractures, pervasiveness of alteration, and anomalous gold content. The source(s) of fluids include: 1) hydraulic jacking associated with thrust displacement; and 2) fluid expulsion and (or) circulation driven by the emplacement of Late Cretaceous magmas.

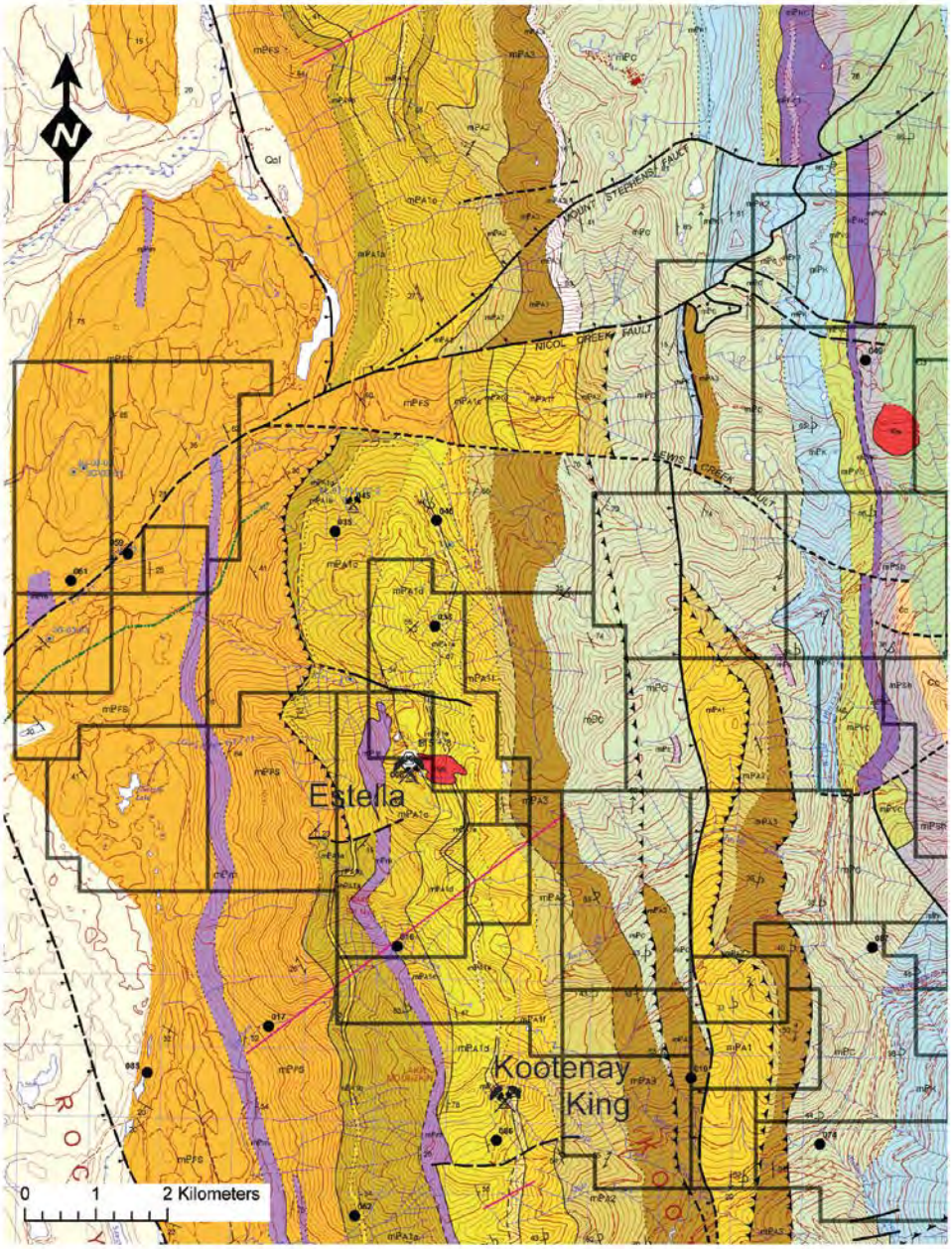

Figure 7-6: Area geology of the Rocky Mountains Block taken from GSC Open File . Tenure blocks are outlined in grey; black dots are mineral occurrences; former producing mines, Estella and Kootenay King are shown as crossed pick and shovel symbol. Stratigraphic unit labels are the following: mPFS = Fort Steele Formation (equivalent to lower Aldridge); mPM = Moyie gabbro sills; mPA1a-f = (middle part of) middle Aldridge; mPA2 = (upper part of) middle Aldridge; mPA3 = upper Aldridge; mPC = Creston Formation; mPK = Kitchener Formation; mPVC = Van Creek Formation; mPNC = Nicol Creek Formation; mPSh = Sheppard Formation; CJ = (Cambrian) Jubilee Formation; KM = Late Cretaceous monzonite to diorite, Estella Stock at lower left.

7.2 Property Geology

The geology reported on herein is summarized in figure 7-7 and presented in detail in figure 7-8 (plot-ready figure in *Map Folder* at end of report; ref. Table of Contents) accompanied by structural and alteration mineral data; tabulated field observation data is presented in Appendix 1.The Spirit quartzite (brown colored map unit) is the primary exploration target, especially at the southern termination of the eastern panel where trenches have exposed a continuous zone of altered quartzite with anomalous gold values across its width and at least 1200 metres along its length.

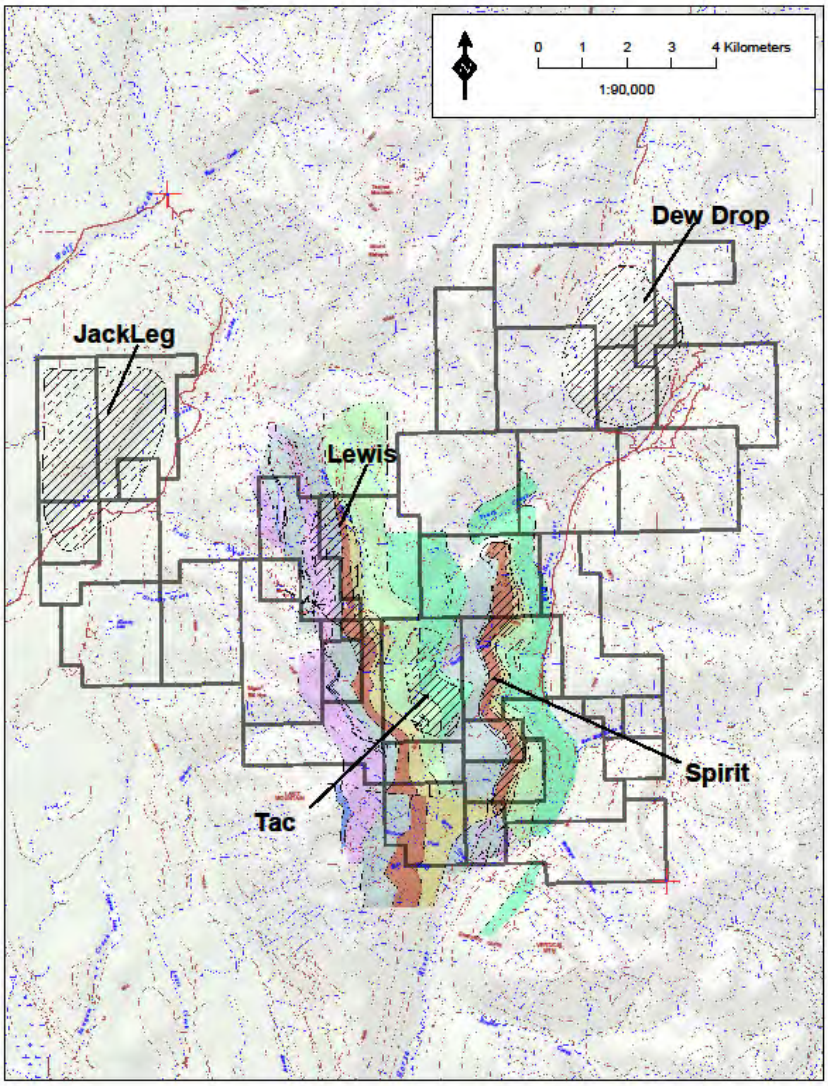

Figure 7-7: A page-scale rendering of detailed geology for the Dewdney Trail Property (full scale rendering, Fig. 7-8, is presented at end of this report in the Map File). The Spirit quartzite, shown brown, is a primary exploration target.

7.2.1 Stratigraphy

The Property is underlain by Mesoproterozoic Purcell strata belonging to the Fort Steele, Aldridge, Creston and Kitchener formations.

The mapping done for this report focused on the southern portion of the property which is underlain by the Aldridge and Creston formations (Fig. 7-8 in Map File at end of report; Table 7-1).

Map unit boundaries shown in figure 7-6 are generally correct; however, in detail figure 7-7 demonstrates there are important differences that bear on the gold potential of the area, thickness estimates for the Aldridge Formation, and apparent repetition of units. Likewise, the breakdown and mapped distribution of lithological units within the Aldridge Formation varies with those illustrated in figure 7-6 and in Höy (1993). This report emphasizes discrete lithological map units; a correlation with map units shown in figure 7-6 is made for the reader's convenience in Table 7-1 and at the beginning of each map unit description.

The stratigraphic succession is described in terms of the map units shown in table 7-1.

In general, the lower portion of the Aldridge Formation (this report: units mPAd, mPAdsq, mPAKKq) is dominated by variably dolomitic siltstone, silty dolomite, and quartzite; by contrast, the upper portion is more argillaceous and siliceous (quartzose), is not dolomitic or calcareous, and contains proximal, turbiditic, quartz-wackes. The transition from Aldridge to Creston formations is gradational, via grey and black siliceous argillite to grey- and green-weathering phyllite and quartzite. The appearance of shallow-water sedimentary structures signifies a change in depositional environment from basin-slope to platform (Höy, 1993), that is, from rift-fill to rift cover (sag) sequences.

Map Unit mPAd (unit mPA1b of Höy, 1993)

One horizon or more of medium grey dolostone occurs within the lowermost strata of the Aldridge Formation in the Hughes Range. It reaches tens of metres in thickness and is best exposed along the main Wildhorse Forest Service Road (Fig. 7-7). This unit is the carbonate marker A1b of Höy (1993) which is mapped from the Kootenay King mine area north to Wasa (Fig. 7-6).

Rare, metre-thick beds of grey dolostone are gradationally interbedded with dolomitic siltstone. The dolostone has a distinctive flinty texture with conchoidal fracture on fresh surfaces (Fig. 7-9) and lacks the strong banding of adjacent siltstones, although faint laminae may be visible and bedding planes can be identified. Locally, weathering of disseminated pyrite imparts a deep rusty colour to weathered surfaces. Decimetre scale lunate ripples in flinty dolostone were observed in the Wild Horse Forest Service Road cut (Fig. 7-10).

Map Legend: Rocky Mountains Tenure Block

Abbreviation	Map Unit	Formation	Description
Ct-E	Syenite	Estella stock	Estella stock: Medium-grained, k-spar porphyritic syenite to quartz diorite
JL	Judy-Lou		
mPt-M	gabbro	Moyie sills	Moyie sills: Massive, coarse-grained hornblende gabbro to variably foliated, fine- or medium-grained dark green greenstone.
mPt-K	Kitchener Fm	Kitchener	Kitchener Fm: Dolomitic phyllite and dolomitic siltstone
mPt-Cq	Creston quartzite	Creston	Creston Fm quartzite: Green, mauve or white to light grey quartzite and phyllitic quartzite in massive beds with interlayered phyllite; Mauve or green orthoquartzite with ubiquitous current structures including planar and trough cross-bedding (and cross-lamination) and asymmetric ripples; synuresis cracks ubiquitous in some beds
mPt-Cph	Creston phyllite	Creston	Creston Fm phyllite: Grey to green phyllitic argillite and siltstone with distinctive wavy bedding surfaces and local syneresis cracks; buff or grey weathered surfaces typically without indigenous sulphide; Tan or cream limonitic immature quartzite sharply interbedded with carbonaceous phyllite; quartzite forms massive (non-laminated) beds ~0.2-2 metres thick.
mPt-Aarg	Aldridge Fm argillite	Aldridge	Aldridge Fm argillite: Silty, often planar laminated medium to dark grey argillaceous rocks; platy to highly fissile and moderately rusty weathering
mPt-Asq	Spirit quartzite	Aldridge	Spirit quartzite: Creamy white (bleached?), limonitic massive metasandstone; bedding surfaces are straight with or without load casts; usually with qtz-ser-py alteration and bearing auriferous qtz-FeCO3-sulphide veins normal to bedding; pale greenish to white where unaltered.
mPt-Atq	turbiditic quartzite	Aldridge	Turbiditic quartzite: Thick, planar bedded, immature light grey to white metasandstone sharply interbedded with strongly planar laminated siltstone and phyllite; common scour and load structures; Tan or cream limonitic immature quartzite sharply interbedded with carbonaceous phyllite; quartzite forms massive (non-laminated) beds ~0.2-2 metres thick.
mPt-Asst	siliceous siltstone	Aldridge	Siliceous siltstone: Dark grey, platy and siliceous, finely parallel laminated siltstone with minor argillite; dark rusty weathering from disseminated pyrite and glassy sounding when struck; resistant, cliff-forming unit
mPt-AKKq	Kootenay King quartzite	Aldridge	Kootenay King quartzite: Extremely massive white to light grey or light pink-brown orthoquartzite; characteristic vitreous fresh surface with granular, 'tapioca' texture; often veined and always lacks compositional banding
mPt-Adst	dolomitic siltstone	Aldridge	Dolomitic siltstone: Prominently planar or flaser laminated to banded argillaceous to dolomitic siltstone and siltstone; dark and light grey with brown-buff weathering; often pyritic
mPt-Ad	dolostone	Aldridge	Dolostone: Light grey, massive, silty to flinty dolostone; often cleaved and lacks compositional banding; strongly pyritic to non-sulphidic; locally, bedding-parallel carbonate sweats leave small lensoidal pits; flinty member has conchoidal fracture and lunate ripples at Wildhorse FSR

Table 7-1: Summary description of stratigraphic succession mapped within Rocky Mountains tenure block. Note, map unit of particular economic interest for gold is mPAsq (Spirit quartzite).

Figure 7-9: Grey, fine crystalline, flinty dolostone with conchoidal fracture pattern. Location: UTM Zone 11, 605289E, 5508487N (station 09JKRM056).

Figure 7-10: Lunate ripple casts on underside of bedding plane in silty dolomite, map unit *mPAd*. Location: UTM Zone 11, 605289E, 5508487N (station 09JKRM056).

Map Unit mPAdst (unit mPA1d of Höy, 1993)

The Aldridge Formation strata which host the Kootenay King and Estella mines are dominated by laminated siltstone and dolomitic siltstone. The dolomitic and non-calcareous varieties of siltstone, although interlayered, can be separated into map units in which one variety is dominant. Dolomitic siltstone is identified by its buff or orange-brown weathering and effervescence in 10% HCl. It is invariably laminated or banded at millimetre to centimetre scale with contrasting dark grey and brown-buff bands. Laminae to centimetre beds are planar (Fig. 7-11) or define truncated bed forms such as flaser bedding or centimeter scale cross-stratification (Fig. 7-12). Rusty weathering is associated with framboidal which is disseminated in this and other units. Dolomitic siltstone is brittle and tends to form angular, unstable talus above tree line.

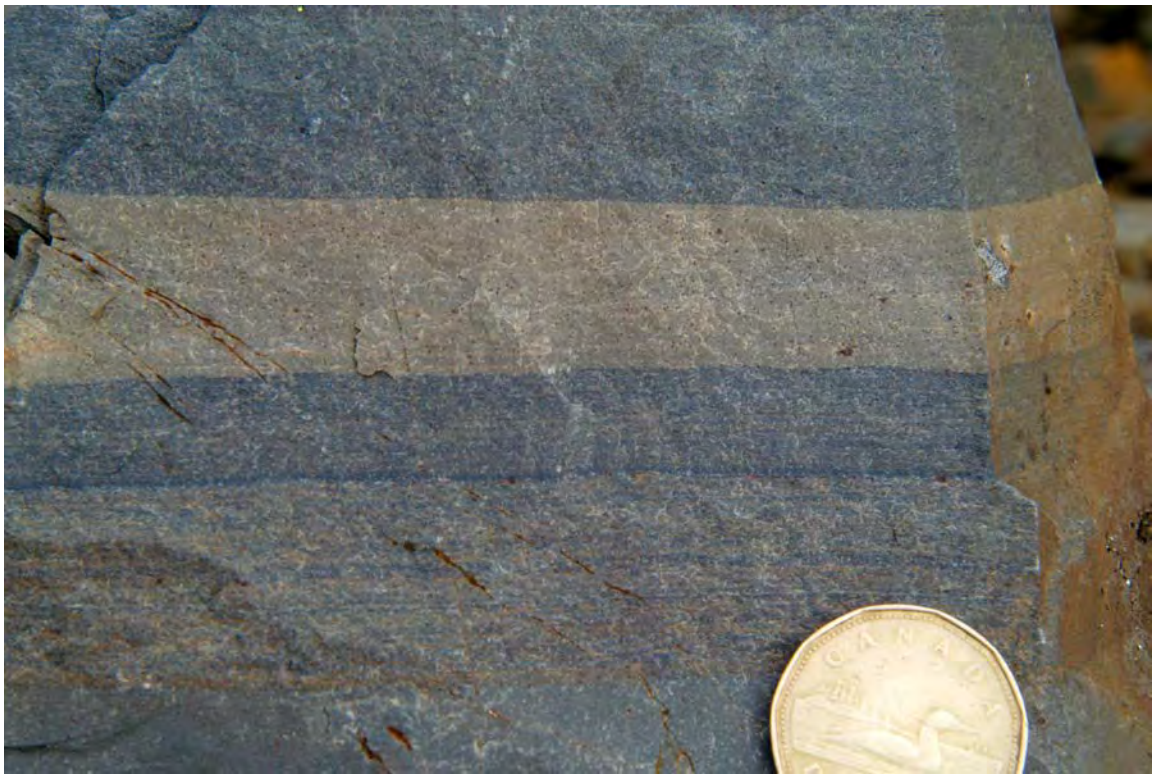

Figure 7-11: Parallel laminated and bedded silty dolostone. Location: UTM Zone 11, 600839, 5512762N (station 09twrm167).

Figure 7-12: Flaser-bedded and laminated dolomitic siltstone.

Map Unit mPAKKq (Kootenay King quartzite; unit mPA1e of Höy, 1993)

The Kootenay King quartzite consists of grey-weathering, massive, quartz-arenite and quartz-wacke units (Figs. 7-13 and 7-14) that can be traced more-or-less continuously from the Wild Horse River to Wasa Creek. Interestingly they directly underlie (stratigraphically) the Kootenay King lead-zinc deposit, and occur in proximity (and directly beneath based on projection; ref. Fig 7-8) to the Estella lead-zinc vein 5.5 km to the north northwest. Discontinuous outcrops of one or more Kootenay King quartzite units were also encountered along the Wild Horse Forest Service Road, due south of the trenches in the Spirit quartzite (ref Fig. 7-8).

Quartzite beds are decimeter to meters thick, massive, blocky and uniformly light- to medium grey weathering; the combination of color and resistant character make them a good marker for mapping purposes (Fig. 7-13). Siliceous, black argillite interbeds, centimeters to metres thick, provide definition; contacts are gradational. Grain size is uniform, medium, and sand content is roughly divided 80 percent quartz to 20 percent lithic (Fig. 7-14).

Figure 7-13: Metre-thick beds of blocky weathering, massive, Kootenay King quartz-arenite: ridge exposure, looking north, at UTM Zone 11, 601689E, 5509674N, (1.8 km north northeast of Lakit Mountain, above Kootenay King lead-zinc deposit).

Figure 7-14: Kootenay King quartz-arenite illustrating medium-grained, homogeneous character with approximately 10-15 percent black, lithic grains. See figure 5 for location.

These quartzites are thicker and coarser south of the Kootenay King deposit where coarse, angular rip-up clasts are observed at the base of the succession. Höy (1993) interpreted them as sands distributed via channels cut into the distal turbidite siltstone succession that envelope the quartzites. Our mapping demonstrates the quartzites are more laterally continuous than previously thought; it is also clear that the quartzites occur at more than one stratigraphic level. North of the Estella deposit (Fig. 7-6) two quartzite units project southward beneath it.

Map Unit mPAsst (unit mPA1f of Höy, 1993)

Dark grey to black, pyritic mudstone, siliceous mudstone, and silty mudstone characterize map unit *mPAsst*. It shatters underfoot like plate glass, testament to its siliceous almost cherty composition and planar laminated to thin-bedded character (Figs. 7-15 and 7-16). Rusty weathering may accompany pyritic horizons. The succession is uniform in character, non calcareous, and can be very resistant. It is little-altered and lacks fractures and veins suggesting low initial porosity and permeability. A relatively quiet basin depositional setting is proposed by Höy (1993).

Figure 7-15: Planar laminated to thin bedded, buff-weathering, black siliceous argillite. Location in rock-scree slide at UTM Zone 11, 604741E, 5513670N (station 09twrm 117).

Figure 7-16: Black siliceous argillite with lamina of orange-weathering siltstone. Low angle truncation features and troughs are evident along some depositional planes. Located on ridge in headwaters of Tackle Creek, at UTM Zone 11, 601610E, 5513484N (station 09twrm139).

Map Unit mPAsq (The Spirit quartzite; unit mPA2 of Höy, 1993)

The map unit of greatest economic interest is the Spirit quartzite, a quartz-arenite succession deposited as decimeter- to meter thick turbidites. There are two north-trending, west dipping panels separated by a shallow west dipping extension fault (Fig. 7-8); both panels are prospective for gold.

Most effort has been expended on the eastern outcropping panel, especially its southern extremity, upslope from the Wild Horse Forest Service Road. It is called the Spirit Showing. Thickness of the quartzite succession there is estimated between 75 and 100 metres. It can be traced northward a distance of 6 km across Little Tackle and Tackle creeks and into Trail Creek. An increase in thickness to approximately 200 m occurs on the north slope of Tackle Creek.

The western panel was mapped from the Wild Horse Forest Service Road, north across the upper drainages of Little Tackle and Tackle creeks and into the headwaters of Lewis Creek, a distance of 9.3 kilometres. Thickness is in excess of 200 metres.

The eastern and western panels are described separately.

The eastern panel

Individual beds are massive, ungraded, medium-grained, and bounded by sharp planar contacts (Fig. 7-17); in some parts of the succession, quartzite turbidites are separated by argillaceous partings, in other parts, argillite interbeds centimeters thick separate individual turbitides (Fig. 7-18). Flute casts were observed on some bedding surfaces, providing current direction indicators and suggesting these deposits accumulated in channels or the inner portions of a fan complex in a high flow regime (Fig. 7-19). There is a lack of grading in most instances; however, the occasional thin basal conglomerate suggests some coarse angular debris was available (Fig. 7-20) and supports the interpretation that these quartz sands are proximal in origin. The Spirit Dream turbidites likely indicate a period of basin instability accompanied by syndepositional faulting.

Figure 7-17: Exposure of Spirit quartzite along exploration trench at the south end of the eastern panel. Turbidites, decimeters to metres thick, are separated by thin, argillaceous partings.

Figure 7-18: Ridge top exposure of Spirit quartzite illustrating argillite beds separating individual quartzite turbidites.

Figure 7-19: Flute casts on underside of bedding plane in eastern panel of Spirit quartzite. Current direction from top left to bottom right.

Figure 7-20: Tabular pebble conglomerate at base of Spirit quartzite turbidite.

The eastern panel is remarkable in its uniformity, in terms of lithology, thickness, alteration and vein density. Sericite-quartz-pyrite-Fe carbonate alteration is ubiquitous; veins are typically millimeter to centimeter wide, have a variety of lengths from centimeters to metres, and are closely spaced at centimeter scale.

The western panel

Individual quartzite turbidites are thicker, and overall thickness of the succession greater (Fig. 7-21). Like the eastern panel, flutes casts are well developed on some bedding surfaces, giving an overall north to south current direction (Fig. 7-22). Unlike the eastern panel, the quartzites are not well fractured or altered south of Tackle Creek; however, north of the creek, on the drainage divide between it and north flowing Lewis Creek, there is a broad zone of intense alteration and veining associated with anomalous gold values in both rock and soil samples (Figs. 7-23 and 7-24; ref Fig. 7-8 in Map Folder at end of report).

Figure 7-21: Massive, steep (overturned) west-dipping beds of Spirit quartzite separated by cm thick cleaved argillite interbeds.

Figure 7-22: Flute casts on underside of steep, west-dipping (overturned) Spirit quartzite turbidite. Current direction is from left (north) to right (south).

Figure 7-23: View southeast at Spirit quartzite forming the headwall of Lewis Creek. Intense sericite-quartz-pyrite-Fe-carbonate alteration imparts orange weathering color. Rock and soil samples are anomalous in gold.

Figure 7-24: Spirit quartzite from headwaters of Lewis Creek (ref Fig 20) illustrating textures and alteration typical of quartzite in eastern panel. Sericitde-quartz-pyrite-Fe-carbonate alteration is pervasive.

Map Unit mPAarg (mPA3 of Höy, 1993)

Laminated, fissile (easily split along closely spaced planes) argillite and siliceous argillite typifies map unit *mPAarg.* Typically, the unit becomes blacker and more phyllitic up section (Fig. 7-25). More resistant units of laminated, buff-weathering siltstone and silty-argillite occur near the base of the unit. Its contact with the overlying Creston Formation is a mixed gradation with green-weathering phyllite and phyllitic quartzite. For mapping purposes, the contact is placed at the first occurrence of shrinkage (mud) cracks.

The most distinctive lithology seen in this unit is a plane- to wavy- parallel bedded silty-argillite at the 5 - 10 mm scale; often, individual beds weather in relief.

Figure 7-25: Parallel laminated, bleached and altered, siliceous argillite of map unit *mPAarg*. Brown spots are oxidized pyrite. Edge of Canadian two dollar coin for scale.

Map Unit mPCph (mPC1, lower Creston Formation, of Höy, 1993)

The Creston Formation marks the onset of a shallow-water despositional setting. The lower Creston Formation consists of interbedded grey, black and green-tinged siltstone and phyllite. Shrinkage cracks (Fig. 7-26) are present at or near the base (they are described as syneresis by Höy, 1993). Green, white and sometimes mauve sericitic quartzite occurs as thin beds with increasing presence up section; ripple and trough cross-lamination may be present. Map patterns (Fig. 7-8 in Map Folder at end of report) suggest a significant northward thinning along the eastern panel.

Figure 7-26: Shrinkage crack casts stand in relief on underside of lower Creston phyllitic argillite. Canadian two dollar coin for scale.

Map Unit mPCq (mPC2, middle Creston Formation, of Höy, 1993)

The middle Creston Formation is a cliff-forming succession of interbedded quartzite, siltstone and argillite. Beds of green- and mauve-tinged quartz-arenite and quartz-wacke are decimeters to metres thick. Cross bedding is common (Fig. 7-27).

Figure 7-27: Cross-bedding in middle Creston quartzite.

Map Unit uKg

Late Cretaceous epizonal dikes, sills and stocks, most notably the Estella stock intrude the succession. These quartz monzonite-granite-quartz syenite intrusions are compositionally variable; their megacrystic texture defined by potassic feldspar- and albite phenocrysts in a fine (often pyritic) groundmass denotes magmatic mixing (Fig. 7-28; Höy, 1993).

The Estella stock and the dykes and sills associated with it are interpreted as epizonal, volatile-rich, and composite (ref. Fig. 7-8 in Map Folder at end of report for location and distribution).

Figure 7-28: Contrasting phase of the Estella intrusive suite samples for adjacent outcrops: Quartz monzodiorite on left contrasts with syenogranite on right. The combination of coarse feldspar crystals in a fine matrix and the differences in composition are evidence of magma mixing and multiple magma sources.

7.2.2 Structure

The Property is contained within the hinge zone and steep, west-dipping, overturned limb of the Lewis Creek anticline (ref. geology map Fig. 7-8 in Map Folder at end of report): an asymmetric, east-verging anticline detached above the Lussier Thrust Fault (Fig. 7-29); the overturned fold limb was subsequently cut by a shallow west-dipping extension fault (Fig. 7-30). The anticline has an axial length of 55 km trending north with essentially no plunge.

The duplication of north-striking stratigraphic panels reflects down-to-the-west movement across the Tackle Creek extension fault (ref. Fig. 7-8in Map Folder at end of report). The net effect of this fault was to displace the fold hinge and the upper part of its eastern limb 5 kilometres to the west. The offset and geometrical relations between eastern and western panels of stratigraphy are illustrated in a structural cross section drawn perpendicular to the fold hinge, along the ridge separating Little Tackle from Tackle creeks (Fig. 7-30).

Figure 7-29: View towards the south, along the hinge zone of the Lewis Creek anticline. Note axial plane of fold is west dipping; beds at extreme left of image are steeply west dipping and overturned. Image taken from ridge defining the headwaters of Lewis Creek

The Tackle Creek fault is offset by a left lateral strike-slip fault that truncates the eastern panel of stratigraphy at its southern end (Fig. 7-8 in Map Folder at end of report). Displacement of 500 metres is indicated from offset across the western stratigraphic panel; however, displacement appears to increase towards the east where the eastern stratigraphic panel juxtaposes Kootenay King quartzite and silty dolomite. We're confident of the mapped relations but not of the fault interpretation in this area.

Deformation within the Lewis Creek anticline is confined to flexural slip across bedding-parallel faults, occasional chevron-style folds (long straight limbs, narrow hinges), and axial-plane cleavage (Fig. 7-31) which is penetrative in shale units and widely spaced in competent units. Generally speaking minor folds are rare.

Structural measurements are summarized in figure 7-32 There is close correspondence between the trend and plunge of the Lewis Creek anticline calculated using bedding (359° at 07°), and from direct measurement of minor fold hinges (182° at 02°). Trend and plunge of the average pole to cleavage is 087° at 61° (axial plane strikes 178° and dips 39° west).

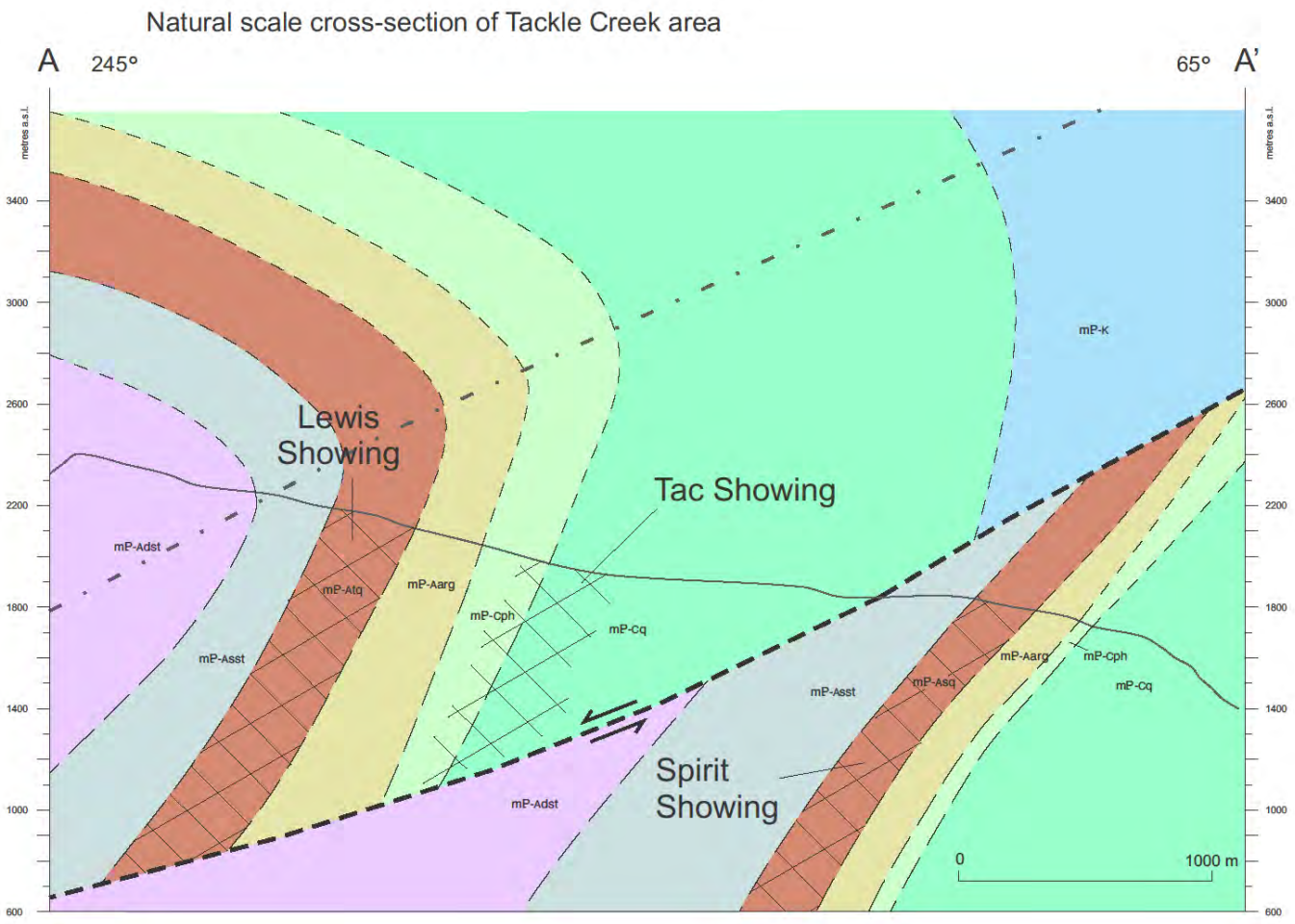

Figure 7-30: East-west structural cross section, viewed from the south, drawn along the ridge separating Little Tackle from Tackle creeks (ref. Fig. 7-8 in Map Folder at end of report). The Spirit quartzite is highlighted in brown. The relative position (projected) of the Spirit Showing (cross-hatching) is illustrated in the footwall of the Tackle Creek extension fault and represents part of the eastern panel of stratigraphy; the relative positions (projected) of the Tac and Lewis showings (cross-hatching) are illustrated in the hanging wall of the fault.

Figure 7-31: Axial plane cleavage in argillaceous bed separating quartzite turbidites (view toward the south).

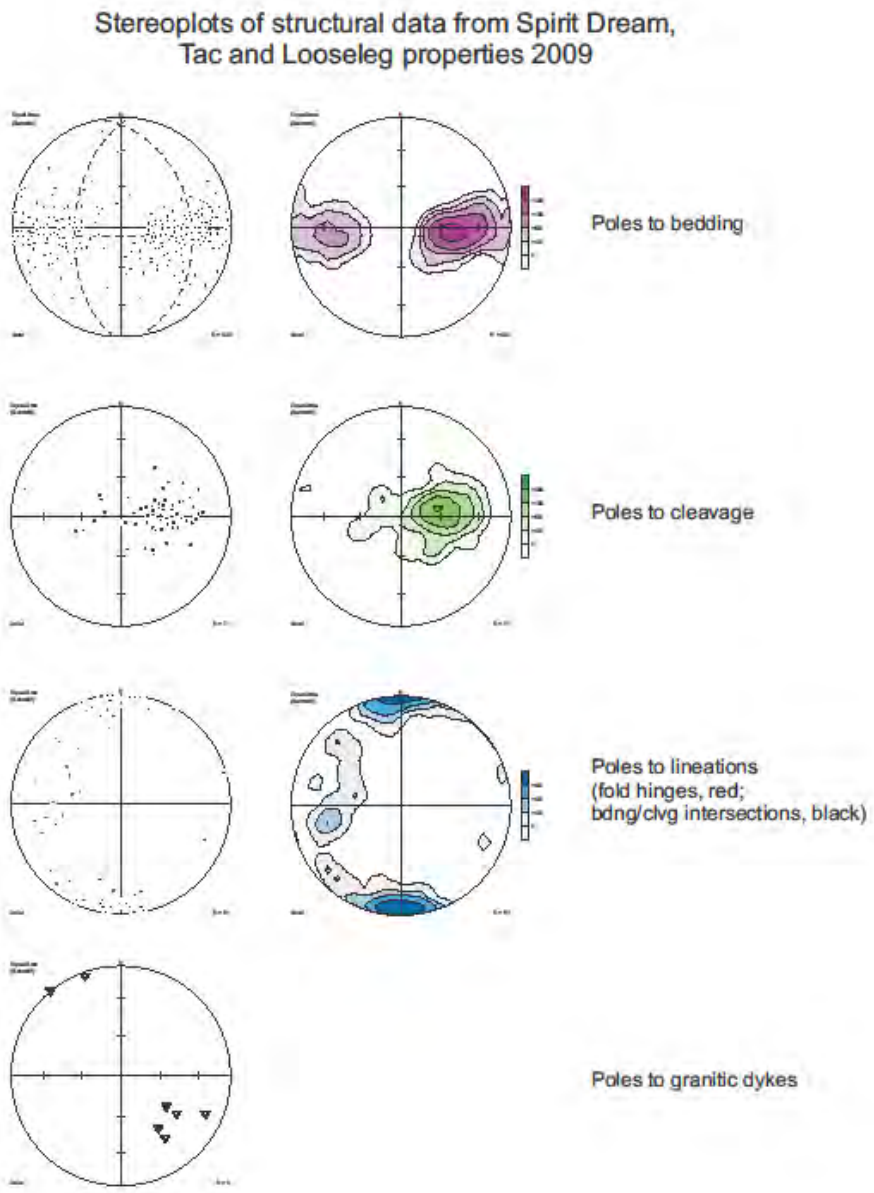

Figure 7-32: Stereogrpahic plots of poles to bedding (magenta), poles to cleavage (green), minor fold hinge lineations (blue), and poles to granitic dykes (triangles). Trend and plunge of the Lewis fold hinge calculated as the pole (normal) to the girdle described by bedding values is: 359° at 07°; trend and plunge of poles to the fold limbs is: 096° at 45° and 266° at 33°; trend and plunge of minor fold hinges is: 182° at 02°; trend and plunge of poles to granitic dykes is: 137° at 22°. Note: reference to "…Spirit Dream, Tac and Looseleg properties…" in figure title is outdated terminology and should read: "…Spirit, Tac and Lewis showing…" as defined in figure 7-7.

8.0 Mineralization and Potential Deposit Type

Two Au-bearing mineralized zones hosted by the Spirit quartzite are summarized in Table 8-1.

Mineralization	Type	Tenure No.	UTM Zone 11 Coordinates	Informal Name	Au Values ppm	Host Map Unit (Fig. 5a)
Au ± Cu	vein micro-vein stockwork disseminated	515884 515885 535380 515891 515894	605377 5510062	Spirit Showing	to 18	*mPAsq*
Au	vein micro-vein stockwork disseminated	598118 598119 515892 515890	602021 5509407	Lewis Showing	to 4	*mPAsq*

Table 8-1: Locations and a listing of tenure numbers are tabulated for mineralized zones hosted by the Spirit quartzite.

8.1 Style of Mineralization

8.1.1 Spirit and Lewis showings

The Spirit and Lewis showings are large tonnage exploration opportunities characterized by:

1. anomalous gold values throughout the host quartzite unit;
2. millimeter to centimeter width, closely-spaced veins;
3. pervading sericite-quartz-pyrite-Fe carbonate alteration; and
4. episodic vein development.

The consistency of alteration and veining across a width of more than 100 m and along a strike length exceeding 4 km for both the Spirit and Lewis showings provides for significant exploration potential. In figure 7-8, alteration plots illustrate how unit-specific the alteration is. We conclude that the Spirit quartzite (*mPAsq*) acted as both fluid conduit and host.

Visible gold associated with hematitic alteration is direct evidence of gold mineralization (Fig. 8-1).

The veins have a preferred orientation perpendicular to bedding, are typically a few millimetres up to a centimetre wide, centimetres to a metre in length, and spaced at centimetre to decimeter scales (Fig. 8-2).

Vein formation was recurrent, demonstrated by cross-cutting relationships (Fig. 8-3) that are consistent with the notion of a resurgent mineralizing system driven by episodic hydraulic fracture.

Figure 8-1: Visible gold (centre of photograph) in hematite filled vein cutting the Spirit quartzite host (map unit *mPAsq*).

Figure 8-2: Typical vein morphology and spacing within Spirit quartzite. Bedding is horizontal in photograph, most veins are perpendicular to bedding. Note the close spacing (Cdn penny for scale) of veins, and vein widths from millimeter to centimeter scales.

Figure 8-3: Three stages of vein development are present: Vertical vein is latest, off-set and thinnest horizontal vein is earliest. In each case, vein reconstruction involves slight oblique movement parallel to elongate crustal growth directions.

8.1.2 Tac Showing

Soil samples having anomalous gold values collected by Placer Dome Inc (1985-1990) and later confirmed by re-sampling by SG Spirit Gold (2006) provided the impetus for trenching and sampling the southern part of the Tac showing in 2008 (assessment report, P. Klewchuck – due for release in March, 2011). There, gold mineralization occurs near the contact of argillite and quartzite (map unit *mPAarg*) in brecciated quartzite, in syenite dikes and in fault gouge zones. The highest gold value (1953 g/t) was collected from a 4-5 metre wide, altered syenite dike. Typically pyrite, sericite and Fe-carbonate occur in association with anomalous gold.

The syenite dikes appear to widen and become more prevalent down slope, suggesting they may be feeding from a stock or pluton present in the valley bottom or shallowly buried beneath it. Since syenitic intrusive rocks are regarded as mineralizing agents in the area, this target merits follow-up.

Past exploration efforts included prospecting, soil geochemistry, rock sampling, VLF-EM, magnetic surveys, IP surveys, hand trenching, and diamond drilling. Recent mapping of the property by SG Spirit Gold (ref geology map Fig. 7-8 in Map Folder at end of report) demonstrates that the focus of exploration and the location of anomalous surface rock and soil values was in the hanging wall of the Tackle Creek extension fault; however, the drill sites chosen for testing these anomalies were located on the extension fault and the drill bit tested the footwall succession without positive results.

8.1.3 Jack Leg Showing

Gold occurs in quartz and quartz-carbonate veins having a spatial relationship to carbonate–altered lamprophyre dikes. Significant gold values were reported by National Gold (2000-2001) across widths of 1 metre or more (AR 26662, 26905): 1955 ppb across 1 m, 302 ppb across 1 m and 604 ppb across 1.5m. A dump sample (Goldylot showing) ran 39000 ppb (39 g/t). High gold values have been reported from samples taken through the Jack Leg area; however, location and descriptive databases are incomplete and in analogue format. A small drill program undertaken by Chapleau Resources Limited (3 holes totaling 417 m) in 2003 failed to encounter gold-bearing veins (Soloviev, 2004).

8.1.4 Dew Drop Showing

Skarn- and intrusion-related copper-gold mineralization, are targets at the Dew Drop showing. A 1 by 3 km Cretaceous fine-crystalline to porphyritic stock of quartz monzonite, monzonite and minor syenite intrudes the Sheppard Formation (Purcell Supergroup) of mid Proterozoic age, and the Jubilee Formation, McKay Group and Beaverfoot Formation of Cambrian and Ordovician age.

Skarn and fracture-related copper-gold showings are present along the intrusion margin; quartz vein and stockwork breccias hosting base- and precious-metals occur distal to the intrusion.

Soil geochemical surveys, mapping, trenching and diamond drilling have been carried out on a limited scale. None of the data was filed for assessment purposes. Dome Exploration (1984-1987) drilled 6 holes in the vicinity of one copper anomaly. Values up to 275 ppm were recorded. All holes intersected syenite, quartz diorite, skarn or hornfels.

8.2 Alteration

At the Spirit and Lewis showings, alteration, expressed as a creamy buff to orange weathering color, is pervasive, observed the entire width and length of the Spirit quartzite host (Fig. 8-4). Under magnification, sericite and the oxidized remnants of disseminated pyrite are ubiquitous. Several varieties of hematite are present with the brick-red oxide (Fig. 8-5) most likely to have visible gold associated with it. Limonite is also evident in most outcrops.

Veins are typically filled with hematite and (or) limonite, quartz, and pyrite, ± Cu oxide and magnetite.

This style of alteration is well developed on the Lewis showing, located at the northern end of the western panel of Spirit quartzite. It is obvious as an orange-brown weathering ridge-top exposure (Fig. 7-23) and at the outcrop scale where vein morphology and alteration minerals are consistent with those seen in the eastern panel of Spirit quartzite (Fig. 7-24). This area did not receive detailed examination or sampling; however, preliminary observations and results (Table VIII-I) suggest it too is a prime target for additional work.

Similar but less well developed alteration mineralogy is present at the Tac showing.

Extensive carbonate and iron alteration is present on the Jack Leg showing.

Figure 8-4: Quartz-limonite vein suggesting at least two episodes of dilation, the first associated with deposition of quartz, the second with the deposition of limonite. In this case, the vein is antitaxial because reopening occurred along the vein wall as opposed to the vein axis.

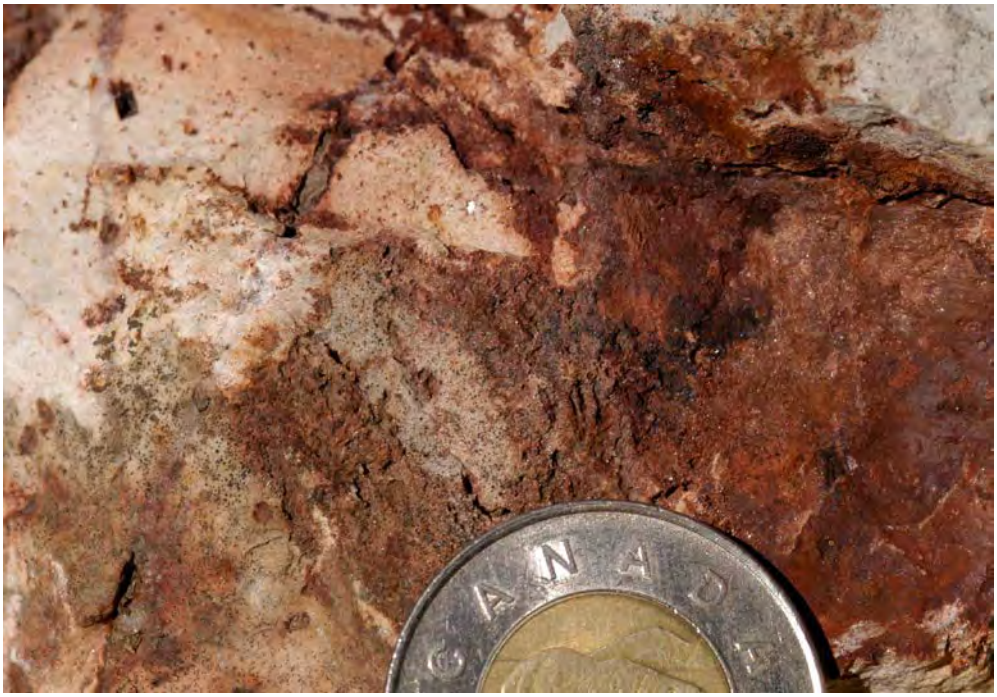

Figure 8-5: Red hematite alteration. Most visible gold is found associated with this color of hematite; hence it is a good prospecting guide.

8.3 Economic Opportunity

In the author's opinion, the Spirit and Lewis showings hold the greatest opportunity for economic return; hence, they are the focus of this report and analysis.

The key economic driver for the Spirit Showing is target size: 100 m by 6000 m. The entire Spirit quartzite unit is anomalous with respect to gold. Given the pervasive nature of the alteration, and the close spacing of veins, there is potential for a bulk-tonnage type deposit.

Drilling should respect vein orientation. Since veins have a preferred bedding-normal orientation, the greatest density of veins will be intersected by drilling along or at a shallow oblique angle to bedding.

A similar scenario applies to the Lewis showing where the combination of consistent width of Spirit quartzite along more than 3 kilometres of strike length defines a large target.

8.4 A Model

The Spirit quartzite, which hosts gold at both the Spirit and Lewis showings (Fig. 7-7), is a permeable unit sandwiched between impermeable, less brittle argillaceous rock units (aquacludes) in the hanging wall of a major thrust fault. The quartzite was both more permeable and more brittle during thrust development. One scenario to explain fracturing and fluid channeling along (up) it involves fluid expulsion associated with thrust fault displacement (Fig. 8-6).

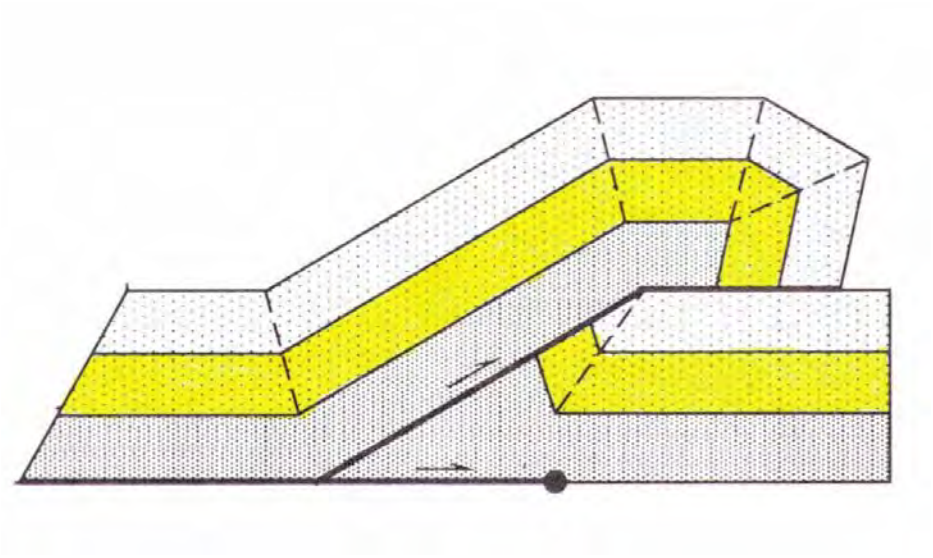

Figure 8-6: Idealized Lewis Creek anticline detached above Lussier thrust fault. Yellow unit represents Spirit quartzite; stippled units represent impermeable argillaceous aquacludes. Displacement along thrust requires high pore fluid pressures. Each fault movement has a "valving action" associated with it whereby: 1) fluid pressure builds, 2) the fault moves, 3) hangingwall units bend and fracture, 4) fluid discharges into newly cracked/veined succession, 5) fault sticks, 6) cycle repeats.

To move, the coefficient of sliding friction along a thrust fault must be reduced to near zero; this is accomplished by hydraulic pumping, creating pore fluid pressures at or near lithostatic stresses on the fault plane. Limits to deformation depend on maintenance of the fluid pressure.

The Spirit quartzite would have provided a fluid escape conduit because it is naturally permeable and susceptible to fracture under conditions of high pore fluid pressure (high pore fluids reduce rock strength).

A fault such as the Lussier Thrust moved many kilometers over a long period of time as a series of small fault events. Hence, recurrent fluid expulsion and associated hydraulic fracturing of the Spirit quartzite could be expected.

What's unique about the quartzite is the combination of alteration and gold deposition – this is not normal association in fold and thrust belts. Fluids, if derived from the thrust fault process, also required a chemical composition consistent with the mineral products now evident in the gold-bearing quartzite.

Late Cretaceous intrusion of granitic rocks, like the Estella stock and the dikes and sills associated with it, may have influenced the source, temperature and chemistry of fluids in the system.

Hence, the combination of 1) a permeable and brittle host, 2) folding associated with thrust displacement, and 3) intrusion of granite during one or more stages of fault displacement, may have provided the necessary ingredients for gold mineralization.

8.5 Arguments Favoring a Sediment-Hosted Vein-Type Interpretation

Sediment Hosted Vein (SHV) deposits contain some of the largest gold reserves in the world. In Asia they include: Muruntau (>80M oz), SukHöy Log (>20 M oz), and Amantaytau, Daugiztau, Kumtor, Bakirchik, Olympiada, Nezhdaninskoe, Natalka and Maysky (all > 5 M oz); in Australia, deposits of the Victorian gold fields include: Bendigo (> 20 M oz), Ballarat, Fostereville and Stawell; in New Zealand: Macraes plus numberous smaller deposits; in south America there are enumerable small to medium deposits; and in North America numberous small to medium deposits occur in the Meguma terrane of Nova Scotia.

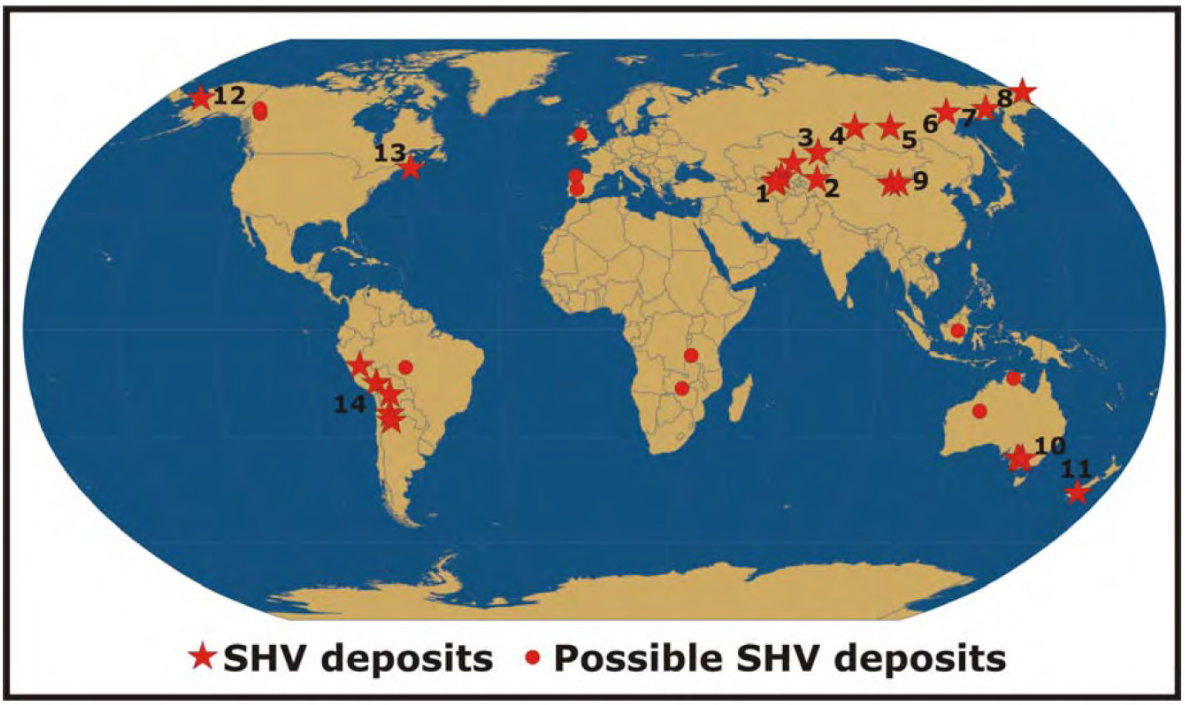

Figure 8-7: Worldwide distribution of sediment-hosted vein-type deposits.(Klipfel, P., 2005)

Characteristics common to this deposit type include: tectonic setting, host rocks, alteration style, metal content, and hydrothermal fluid chemistry. SHV deposits tend to be hosted by large-extent shale and siltstone packages deposited as continental margin terrace sequences that subsequently underwent fold and thrust deformation.

Quartz and quartz-carbonate veins with gold, associated with a distinctive alteration signature, characterize SHV deposits. Carbonate alteration accompanied by sericite in a

bleached host rock exhibiting pastel surface colors (mauve, kaki, yellow-brown and sand) are typical. Often, these are gold-only systems, making mineralogy and mining straightforward.

The Spirit, Tac and Lewis showings fit these criteria – especially the Spirit Showing. For example:

- the host sandstone is mid Proterozoic age;
- the host sandstone was deposited along a continental margin in a facies change between thick, deep-water clastic rocks on the west and a thin sequence of shallow-water rocks on the east (Fig. 7-2);
- the alteration assemblage includes sericite, quartz, pyrite, Fe-carbonate;
- pyrite was introduced to the system and occurs as euhedral cubes of varying sizes;
- gold is the only systematically enriched metal;
- spirit Showing is spatially associated with the Wild Horse Placer deposits;
- there are several showings of the same type in close proximity;
- granitic rocks are spatially associated; and
- age of mineralization is likely Mesozoic and associated with several pulses of Mesozoic and Tertiay folding and thrusting.

8.6 Dewdney Trail Property as Source for the Wild Horse River Placer Deposits

Given the proximity of the Spirit Showing to the Wild Horse River, the author postulates it was the source for the Wild Horse placer gold deposits located 8 kilometres down stream. Reasoning is based on two observations: 1) The quartzite is nearby and has the most consistently anomalous gold values over a significant width and strike length; and 2) it occupies the only large bowl-shaped catchment basin along either slope of the river from where sufficient material could have been sourced to create a sizeable placer deposit downstream.

9.0 Exploration

Recent exploration by SG Spirit Gold (2008-09) was conducted on four fronts:

1. prospecting supported by rock sample geochemistry, performed under contract (Figs. 9-1a and 9-1b);
2. soil sampling carried out under contract (Figs. 9-2a and 9-2b);
3. trenching and associated sampling (Klewchuck, unreleased assessment report);
4. property-scale geological mapping (Thompson, unreleased assessment report); and
5. compilation of existing databases into GIS format.

9.1 Rock Geochemistry

Maps showing rock geochemical results relative to geology, appropriate for viewing and plotting at 1:10,000, are presented at the end of this report as figures: 9-1a and 91-b; results for some major elements in addition to gold are presented in table 9-1. These data were collected by SG Spirit Gold during the period 2005-2009. Figure 9-1a (in Map Folder at end of report) shows a plot of gold values in samples collected in 2005 and 2008; figure 9-1b shows a plot of values in rocks collected in 2009

Rock geochemistry (prospectors' samples) has proven an efficient method of locating anomalous gold values, especially in and along the Spirit quartzite at the Spirit Showing. Follow-up sampling along trenches has validated the prospecting approach. Numerous samples, many of them closely spaced, have gold values in the 100 to 500 ppb range over a large area of Spirit quartzite, something one would expect from a sediment-hosted vein-type deposit (Fig. 9-1a,b in Map Folder at end of report).

These pages are reserved for Table 9-1a: Spirit and Tac showings rock geochemical results (2005, 2008, 2009). Delete after PDF is created and insert correct PDF file (Table 9-1 rocks)

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These pages are reserved for Table 9-1a: Spirit and Tac showings rock geochemical results (2005, 2008, 2009). Delete after PDF is created and insert correct PDF file (Table 9-1: rocks)

9.2 Soil Geochemistry

Maps showing soil geochemical results relative to geology, at scales appropriate for viewing and plotting , are presented at the end of this report as figures: 9-2a and 9-2b; results for some major elements in addition to gold, are presented in table 9-2. Figure 9-2a shows results from older surveys for the map area as a whole; figure 9-2b shows results from a 2009 survey conducted by SG Spirit Gold Inc.

Soil geochemistry has proved useful in targeting the Spirit quartzite and is viewed as a valuable means of locating anomalous zones within the quartzite where it is covered by overburden.

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These pages are reserved for Table 9-1b: Spirit and Tac showings soil geochemical results (2009). Delete after PDF is created and insert correct PDF file (: Table 9-2) soils)

9.3 Geophysics

From October 13th to November 5th, 2010, a helicopter-borne geophysical survey over portions of the Dewdney Trail Property (Fig. 9-3) was carried out by Aeroquest International on behalf of 1532063 Alberta Inc. The principal geophysical sensor was Aeroquest's AeroTEM III time domain helicopter electromagnetic system employed in conjunction with a high-sensitivity caesium vapour magnetometer. Total survey coverage was 806.4 line-km, distributed between three areas: Spirit-Tac-Lewis showings, Jack Leg showing and Dew Drop showing (ref. Fig. 7-7). The data and interpretations presented in this report are preliminary; follow-up processing will be required for target generation purposes.

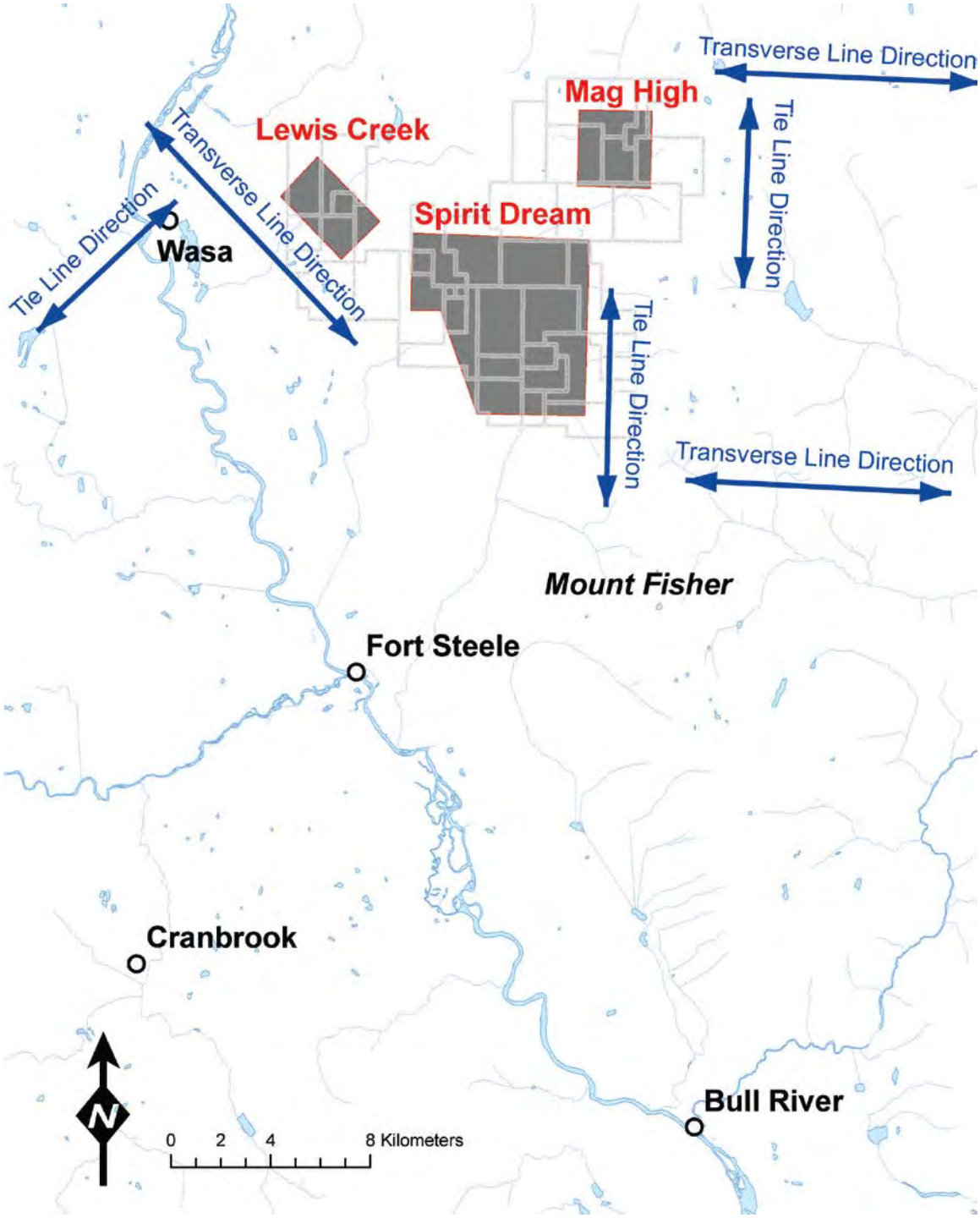

Figure 9-3: Aeroquest project area. The area labeled *Spirit Dream* contains the Spirit, Tac and Lewis showings; the area labeled *Lewis Creek* contains the Jack Leg Showing; and the area labeled *Mag High* contains the Dew Drop Showing. Tenure boundaries are outlined as grey lines.

9.3.1 Electromagnetic Profile (EM) Results

Electromagnetic (EM) profile results are plotted relative to geological contacts in figure 9-4, presented at the end of this report as a map appropriate for viewing and plotting at 1:50,000. These very preliminary results show little in the way of high amplitude conductance response except for 3 areas: 1) in the Wild Horse River valley, due south of the Spirit Showing; 2) in the headwaters of Trail Creek just west of the limit of mapping of the Spirit quartzite; and 3) in Tackle Creek, as two zones, one more or less parallel to the major extension fault, and a second one overlapping the trend of the Spirit quartzite. The Z-component response is a single, asymmetrical peak in the latter to areas, suggesting the conductor is steep-dipping and relatively thick (>10 m). Of particular interest is the anomaly over the Spirit quartzite because it may represent a magnetite-pyrrhotite-rich exploration target favorable for gold concentration. South of the Spirit showing, there are two anomalies: both appear to be (primarily) single-peaked and asymmetric, suggesting thick (>10 m) steeply dipping conductors are present; however, the eastern-most anomaly has some asymmetric double-peaked Z-responses which may indicate one or more thin conductors.

The source of the anomalies may be magnetic dikes of syenite and (or) magnetite-pyrrhotite-rich fault and (or) breccia zones. This is a very preliminary interpretation but is consistent with the hypothesis that intrusion of metal-bearing granitoid bodies in conjunction with deformation may have provided heat and Au-bearing solutions that circulated upward with flow focused along the porous, steeply-dipping Spirit quartzite.

Zones of weak, low-amplitude EM disturbance are evident in spatial association with the Spirit quartzite. These anomalies will have to be re-processed in an attempt to discern whether or not they are associated with concentrations of magnetite and (or) pyrrhotite.

9.3.2 Total Magnetic Intensity (TMI) Results

Total magnetic intensity (TMI) is plotted relative to geological contacts in figure 9-5, which is presented at the end of this report as a map appropriate for viewing and plotting at 1:50,000. These very preliminary results show the strong magnetic presence of the small Estella stocks to the northwest and the much larger pluton in and around the Dew Drop Showing to the northeast. The new revelation is a strong magnetic high in the Wild Horse River valley adjacent to the southern end of the Spirit Showing. Given the size and strength of the magnetic high there, it suggests a significant plutonic source underlies the showing at a shallow depth. Additional processing will permit an estimation of the depth of burial.

10.0 Drilling

Drill programs of a very limited nature have been undertaken at the Tac, Jack Leg and Dew Drop showings by previous owner/operators (prior to 2004). A synopsis is provided below; a more complete historical account is available from Ransom's 2006 report available on SEDAR.

10.1 Spirit and Lewis showings

Neither the Lewis nor Spirit showings have been drill tested.

10.2 Tac Showing

Aldridge Resources (1995) drilled a total of 649 m in seven drill holes (AR 24211). All holes were drilled in the vicinity of a weak soil anomaly having values between 40 and 60 ppb gold. The highest gold value drilled was a 1 m interval (drilled width) having 550 ppb; orientation of the mineralization is not known.

Recent mapping (Fig. 7-8 in Map Folder at end of report) demonstrates that the focus of exploration and the location of anomalous surface rock and soil values was in the hanging wall of the Tackle Creek extension fault; however, the drill sites chosen for testing these anomalies were located on the extension fault and the drill bit tested, for the most part, the immediate footwall succession which is not considered prospective.

10.3 Jack Leg Showing

A small drill program undertaken by Chapleau Resources Limited (3 holes totaling 417 m) in 2003 failed to encounter gold-bearing veins (Soloviev, 2004).

Disseminated copper mineralization in the Fort Steele Formation, adjacent to the Lewis Creek Fault, was drilled in 2007 (AR29808). The copper-bearing interval is 30 m thick (drilled width – true thickness not known); however, the best value was 1150 ppm Cu over 1 m (drilled width). The Lewis Creek fault was intersected and consists of a 6 m wide (drilled width – true thickness not known) zone of crushed quartz adjacent to a narrow zone of sheared gabbro adjacent to the footwall. The fault zone contains significant gold mineralization: 2.08 g/t across a 45 cm width; 609 ppb across a 1 m width; 588 ppb across a 25 cm width – all are drilled widths[3]. There was no follow-up of gold potential in the fault zone.

10.4 Dew Drop Showing

Dome Exploration (1984-1987) drilled 6 holes in the vicinity of one copper anomaly. Values up to 275 ppm copper were recorded. Holes 3 and 4 intersected anomalous gold – 35-340 ppb and 33-180 ppb respectively – the remaining holes were barren. All holes intersected syenite, quartz diorite, skarn or hornfels.

11.0 Sampling Method and Approach

A soil (B horizon) geochemistry sampling program (contour lines) was undertaken by SG Spirit Gold Inc. in 2009 to test for the northward extension of anomalous gold in the Spirit quartzite beyond the immediate Spirit Showing area. Each sample was provided a unique field number and UTM coordinate. This information has been collated with analytical results (Fig. 9-2b; Table 9-2) received from ACME Labs Inc. and the lab certificates produced as Appendix 3. Samples were taken at 50 m intervals along contour lines spaced approximately 250 m apart. Five contour samples lines were completed and a total of 164 samples collected. Several samples were anomalous in gold (> 25 ppb Au), a couple exceeding 150 ppb Au all collected from atop the Spirit quartzite or immediately adjacent to it (Fig. 9-2b).

The author has compiled soil sample results taken on the Dewdney Creek Property from assessment reports and unpublished SG Spirit Gold Inc. reports (Fig. 9-2a); however, the author was not able to verify these results and presents them for the sake of comparison and completeness.

A three-phase rock geochemistry sampling program was undertaken by SG Spirit Gold Inc. in the period 2005-2009: 1) Prospecting samples were first collected in 2005 to identify areas having anomalous gold mineralization (Table 9-1; Fig. 9-1a); 2) this was followed by prospecting and trench-based grab sampling of the Spirit Showing in 2008 (Table 9-1: 36 samples collected; Fig. 9-1a); and 3) follow-up prospecting grab sampling (Table 9-1: 34 samples collected) and trench-based sampling (Table 9-1: 84 samples collected) at both the Spirit and Tac showings was completed in 2009 (Fig. 9-1b). Each sample was provided a unique field number and UTM coordinates, and a description of the sample material was recorded. This information has been collated with analytical results (Fig. 9-1a,b; Table 9-1) received from ACME Labs Inc. and the lab certificates produced as Appendix 2. The sampling in 2005 was reconnaissance in nature and depended on the availability of outcrop and the “look and feel” of the rocks; figure 9-1a shows sample site distribution and spacing. Sampling in 2008 focused on trenches cut across the strike of the Spirit quartzite near its southern limit (Fig. 9-1a: ref. sample locations on 1st and 2nd switch-backs of “road” crossing southern limit of Spirit quartzite); samples were grabs, taken from available exposures. Sampling in 2009 was similarly trench-based, comprising for the most part grabs collected from available outcrop; sample distribution and spacing is indicated on figure 9-1b; as well, reconnaissance grab samples were taken from along strike extension of the Spirit

quartzite where it had yet to be prospected; these sample sites are also illustrated on figure 9-1b.

In the author's opinion, all samples were securely handled. Sample material was placed in polyurethane, woven (rock) and kraft paper (soil) bags and their tops secured. Surface outcrop and soil samples were shipped to ACME Labs Ltd. in Vancouver, B.C together with sample shipment forms listing the sample numbers. In Vancouver, ACME Labs Ltd. used proper and secure handling procedures prior to, and during, preparation and analysis of the samples. Analytical precision and accuracy were frequently checked against sample standards.

12.0 Sample Preparation, Analyses and Security

All samples were securely handled. Each sample was placed in a polyurethane bag and one of two duplicate sample tags inserted with the sample; each bag was secured with a plastic strap and the sample number written on the outside of the bag; a duplicate sample tag was affixed to the sample site at the time of sampling; and the sample number, along with UTM coordinate and relevant notes were recorded in a water proof field notebook. At the end of each work day, samples were transported by field vehicle to the town of Kimberley where they were secured in a private residence and readied for shipment. At the end of each phase of sampling, the bags were put into self-addressed rice bags and shipped via Greyhound Parcel Service to Acme Analytical Laboratories Ltd. in Vancouver, British Columbia.

Acme Analytical Laboratories Ltd. is accredited under ISO 9002; it is a participant in the CAEAL Proficiency Testing Program; and is registered by the BC Ministry of Water, Land and Air Protection under the Environmental Data Quality Assurance (EDQA) Regulation; Acme also participates regularly in the CANMET and Geostats round robin proficiency tests.

Rock and soil samples were prepared at the Acme Analytical Laboratories Ltd ("Acme") preparation lab in Vancouver, B.C. Rock samples were crushed to 70% passing a 2mm screen, and a 250 g split from the crushed sample was then pulverized to 85% passing a 75 micron screen. The samples were then fire assayed for gold (Group 3B, 30-gram sample), and analyzed by 35-element ICP-E. Sample handling during preparation and analysis was the sole responsibility of Acme Analytical Laboratories Ltd. personnel; in no instance did an employee, officer, director or associate of SG Spirit Gold or Alberta Inc. participate in the sample preparation and (or) analytical procedures.

13.0 Data Verification

Laboratory analytical certificates from Acme Labs (Appendices 2 and 3) were vetted by the author for unreasonable values caused by typographical errors, mistaken units, or corrupted data entries. Results were also checked against internal ACME standards for

both accuracy and precision. In the author's opinion, the results provided by ACME Labs, and reported here in appendices 2 and 3, meet or surpass industry standards for accuracy and precision.

14.0 Mineral Processing and Metallurgical Testing

No metallurgical sampling or testing were or have been conducted on materials from the Property.

15.0 Mineral Resource and Mineral Reserve Estimates

There are no reserves or resources on the Property either historically or as defined by NI 43-101 or conforming to CIMM standards.

16.0 Adjacent properties

Two past producing mines, the Kootenay King and the Estella, are adjacent to the Property (Fig. 7-6; production statistics were not verified by the author). Both mines produced Ag-Pb-Zn, with some gold also produced from the Kootenay King mine.

The Kootenay King deposit is stratiform in character, and occurs on the overturned limb of the Lewis Creek anticline. Bedded ore occurs within an impure dolomitic quartzite near the top of the Kootenay King quartzite succession (*Map Unit mPAKKq*). Mineralization consists of fine-grained, laminated pyrite, galena and pale grey to green sphalerite. The deposits lacks many of the geological characteristics typical of the Sullivan massive sulphide deposit such as a footwall tourmalinized breccia "vent", footwall stringer zone, and hanging wall alteration, suggesting it might be distal from the vent source, or that much of the deposit is eroded (e.g. Höy, 1993).

Property	Deposit Type	Ore[4] Mined (tonnes)	Au (grams)	Ag (tonnes)	Pb (tonnes)	Zn (tonnes)	Location UTM Zone 11
Kootenay King	Stratiform Exhalitive	13,260	715	882	711	881	603617E 5509135N
Estella	Vein Mesothermal	109,518		6,393	5,181	9,834	600748E 5613800N

Table 16-1: Summary of production from the Kootenay King and Estella Mines located adjacent to the Dewdney Trail Property (ref. Figure 7-6 for map location).

[4] All figures are from production reports available from the BC Department of Energy, Mines and Petroleum Resources: http://www.empr.gov.bc.ca/MINING/GEOSCIENCE/MINFILE/Pages/default.aspx

The Estella silver-lead-zinc vein is hosted by siltstone and argillite belonging to map unit *Map Unit mPAsst* (Table 7-1). Two mappable quartzite units, belonging to the Kootenay King succession, strike into it suggesting this deposit occurs at approximately the same stratigraphic level as the Kootenay King silver-lead-zinc deposit. The mineralized vein occurs within a zone of fracturing and minor shearing, adjacent to the Estella stock, which dips to the southwest at angles between 40° and 70°; the main ore shoot rakes at a shallow angle to the southeast (Höy, 1993; Hedley, 1952, 1964).

The metal produced from the Kootenay King and Estella mines does not reflect the style, magnitude or commodities that may occur on the Dewdney Trail Property.

17.0 Other Relevant Data and Information

In the author's opinion, the "nugget effect" is an important consideration when assessing the rock geochemical data for the Spirit Showing. In several cases samples containing visible gold returned analytical results in the 50 – 500 ppb range. This likely reflects the malleable nature of gold: when rock samples are ground to a fine powder for acid digestion and analysis, large gold particles tend to flatten into flakes rather than break into micron-sized pieces; hence, the gold flakes are caught in sieves and excluded from the material analyzed.

One way of overcoming the "nugget effect" is to take a bulk sample for processing at an operating gold mine where visible gold is recovered using flotation procedures.

18.0 Interpretation and Conclusions

The Dewdney Trail Property is part of a regional-scale, east-verging hanging wall anticline detached above the Lussier Thrust Fault. The structure is intruded by Late Cretaceous syenitic dikes derived from stocks that may have injected heat and mineralizing fluids into the evolving fold-thrust structure.

Of the five areas or showings where gold mineralization is known: Spirit, Tac, Lewis, Jack Leg and Dew Drop, the Spirit and Lewis showings exhibit many features in common that support potential for a large tonnage deposit of the SHV (sediment-hosted vein) type. In the author's opinion, these two showing have significant promise and should be the focus of future exploration of the property.

Thrust faulting and associated hanging wall folding proceeded in a pulse-like fashion, controlled by cycles of fluid pressure build-up and release (valving) which has the effect of redistributing large volumes of over pressured fluids. The intense, widely distributed fractures and veins, wholesale alteration and visible gold reflect the many cycles of "valving" the host rocks underwent during deformation.

The role of dike and stock intrusions is not fully understood but is considered important in the mineralizing process: as a source of gold-bearing fluids and of heat.

As a consequence, the Dewdney Trail Property has the following attributes:

- it contains large-tonnage gold prospects;
- visible gold is hosted by quartzite (arenite and wacke) within the upper part of Mesoproterozoic Aldridge Formation (Spirit and Lewis showings);
- rock samples containing gold concentrations to 18 grams per tonne highlight a mineralized unit, the Spirit quartzite (informal), approximately 100 m thick and having a strike length in excess of 5 km;
- gold targets (Spirit, Tac, Lewis, Jack Leg) are pervasively altered (sericite-quartz-pyrite-Fe oxide-Fe carbonate) and veined.;
- veins (Spirit and Lewis) are closely spaced (centimeter scale), have widths ranging from millimeters to centimeters, and range in length from centimeters to more than a metre;
- there is a preferred vein orientation perpendicular to bedding (Spirit), an observation that should be taken into account when planning a drill program;
- multiple episodes of vein production (Spirit and Lewis) are evidence that the mineralizing system was resurgent;
- the combination: stratigraphic setting (permeable quartzite sandwiched between argillite aquatards) and structural setting (a steep, overturned, west-dipping rock panel detached above the major east-verging Lussier thrust fault) account for both the focused fluid flow and the resurgent nature of the fluid system;
- the Spirit Showing, part of which occupies a large catchment bowl located on the south-facing slope of the Wild Horse River, and from which substantial material has been removed by alpine glaciations and stream erosion, represents a likely source for the Wild Horse River gold placer deposits (located 8 km downstream) from which 1.5 million ounces of gold have been recovered;
- the Spirit and Lewis showings have many characteristics in common with SHV type gold deposits which represent a significant world gold resource and reserve; and
- the Property is part of the regional Kimberley gold trend, a zone of anomalous gold concentrations which can be traced approximately 100 km from near the town of Creston, east northeast across the Purcell Mountains to the Rocky Mountain Trench at Cranbrook, and from there to the north along the Hughes Range of the western Rocky Mountains.

In conclusion, gold potential of the Property is considered high because:

- **Significant Gold at Surface**: Anomalous gold values as high as 15 g/t, including significant visible gold, has been documented from surface exposures.
- **Size Potential**: The gold-bearing system is large, measured in kilometers.
- **Favorable Geologic Setting:** Gold occurs within a porous quartzite unit sandwiched by argillite aquatards.

- **Textures and Alteration Consistent with Gold Deposition in a SHV Setting**: Gold occurs within a quartzite unit that is:
  - pervasively altered (sericite-quartz-pyrite-FeCarbonate); and
  - intensely fractured and veined
- **Significant Ground Preparation**: Several surges of veining, brecciation and stockworking focused fluid flow and provided the opportunity for gold transportation and deposition.
- **Regional Scale Structures**: The host unit forms part of a regional scale, detached, hanging-wall anticline that is structurally linked to the Kimberley Gold Trend.
- **Excellent Infrastructure and Logistics**: All season road-access and a nearby power grid have important long-term cost implications.
-

19.0 Recommendations and Budget

A two-phase program is recommended having a projected total cost of: $320,500 for phase 1; and $920,000 for phase 2. The phase one emphasis is: 1) to define the best targets within each of the four showings (Spirit, Tac, Lewis and Dew Drop), and 2) to explore the remainder of the property not yet mapped or sampled in detail; the phase two emphasis is: 1) to bulk sample and drill the most promising targets. The second phase of work will be contingent on results of the first phase.

A summary of recommended exploration activities is presented below and in Table 19-1.

Spirit Showing
The greatest immediate potential is at the southern end of the Spirit showing where trenching and sampling have been most thorough; however, it is now established that the host lithology has a strike length in excess of 5 km (northward) and is altered, fractured, veined and contains anomalous gold along this strike length. Therefore, a primary objective will be to establish where the most anomalous gold-bearing zones (hot spots) are and to focus exploration efforts there. The following sequential approach is recommended:

1. Additional processing and interpretation of airborne geophysical data to identify targets in Spirit quartzite for ground follow-up;
2. systematic gridded soil sampling of targeted areas (25 m sample spacing and 50 m line spacing)
3. thorough, systematic prospecting of targeted areas;
4. systematic trenching (250-500 metre line spacing) guided by results from work outlined above;
5. channel sampling of trenches and large proximal-to-source boulders;
6. bulk sample to test for and evaluate nugget effect and to help determine the appropriate sample size required to effectively drill test targets having disseminated nugget-like gold; and
7. drill to test for extent and grade of gold mineralization.

Tac Showing

Gold mineralization is widespread, occurring in brecciated quartzites and siltstones, in numerous quartz veins, in syenite dikes and in fault zones. Some clay gouge fault zones with little or no apparent quartz are anomalous in gold. Typically pyrite, sericite and iron carbonate occur in association with anomalous gold. A gold-mineralized syenite dike thickens northward across part of the area of trenching. Since the role of intrusions in the mineralizing process is not fully understood, the following approach is recommended:

1. Additional processing and interpretation of airborne geophysical data to identify targets in Spirit quartzite for ground follow-up;
2. map and sample all syenitic dikes including geophysical targets; and
3. trace and sample known mineralized dike downhill to the north, checking for changes in alteration minerals, an increase in dike dimensions or numbers, and likelihood of an exposed or near surface stock or pluton that could be a mineral-bearing, blind, exploration target.

Lewis Showing

This showing has the same host and structural setting as the Spirit one; however, it occurs in the hanging wall of a shallow, west-dipping extension fault that cuts through the steep, overturned eastern limb of the hanging wall anticline that is host to the Spirit Showing. Since the Lewis Showing has not been as extensively explored as the Spirit, the following approach is recommended:

1. Additional processing and interpretation of airborne geophysical data to identify targets in Spirit quartzite for ground follow-up;
2. systematic gridded soil sampling (25 m sample spacing and 50 m line spacing) across the strike of the host quartzite unit;
3. thorough, systematic prospecting;
4. channel sample exposed areas having anomalous gold in hand samples;
5. systematic trenching predicated on results from soil and rock sampling programs;
6. bulk-sample and (or) drill predicated on results from trenching program.

Jack Leg Showing

Quartz veins in highly altered Fort Steel Formation quartzite have been previously drilled without success. The assumption that veins are flat-lying is in doubt. Geological mapping emphasizing structural relations is required in combination with interpretation of the recently acquired geophysical data. Trenching to increase exposure is also necessary. The following approach is recommended:

1. Map area, paying special attention to structural relations and alteration-mineral zonation; combine with geophysical interpretation to generate prospective drill targets;
2. trench and channel samples targets identified by mapping;
3. drill targets derived from combination of structural analysis, geophysical interpretation and trench sampling (1000m)

Dew Drop Showing
The nature of this showing is not well defined; specific targets have yet to be defined and adequately evaluated. The following approach is recommended:

1. Additional processing and interpretation of airborne geophysical data to identify targets in Spirit quartzite for ground follow-up;
2. systematic geological mapping in conjunction with interpretation of geophysical data;
3. thorough, systematic prospecting of target areas;
4. reconnaissance soil sample grid (100m sample spacing; 100 m line spacing); and
5. trench and channel-sample any well-defined targets generated in phase 1.

By establishing both the geological setting and a geochemical assessment of the Dew Drop Showing together with implications for blind targets from geophysical analysis, follow-up exploration protocols will become evident.

Table 19-1: Tabulated exploration program and costs for Dewdney Trail Property.

Phase 1: Recommended Program	**Cost**
Spirit Showing	
Additional processing and interpretation of airborne geophysical dataset to identify targets in Spirit quartzite for ground follow-up	$ 20,000.00
Thorough systematic prospecting of targeted areas	$ 23,000.00
systematic gridded soil sampling of target areas (25 m sample spacing and 50 m line spacing)	$ 60,000.00
systematic trenching (250-500 metre line spacing) guided by results from work outlined above	$ 30,000.00
channel sample trenches and large proximal-to-source boulders	$ 45,000.00
Tac Showing	
use geophysical data to target near-surface intrusions	$ 2,500.00
map and sample all syenitic dikes including geophysical targets	$ 4,000.00
trace and sample known mineralized dike to the north, checking for likelihood of an exposed or near surface stock or pluton that could be a mineral-bearing blind exploration target	$ 2,000.00
Lewis Showing	
Additional processing and interpretation of airborne geophysical dataset to identify targets in Spirit quartzite for ground follow-up	$ 10,000.00
systematic gridded soil sampling (25 m sample spacing and 50 m line spacing) across the strike of the host quartzite unit	$ 30,000.00
thorough, systematic prospecting	$ 13,000.00
channel sample exposed areas having anomalous gold in hand samples	$ 30,000.00
Jack Leg Showing	
Map area with emphasis on structural analysis; combine with geophysical interpretation to generate prospective drill targets	$ 8,000.00
Dew Drop Showing	
Additional processing and interpretation of airborne geophysical dataset to identify targets for ground follow-up	$ 10,000.00
systematic geological mapping in conjunction with interpretation of geophysical data	$ 8,000.00
thorough, systematic prospecting of target areas	$ 10,000.00
reconnaissance soil sample grid (100 m sample spacing; 100 m line spacing)	$ 15,000.00
TOTAL COST, PHASE 1	**$ 320,500.00**
Phase 2: Recommended Program	
Spirit Showing	
bulk sample to test for and evaluate nugget effect	$ 250,000.00
drill to test for extent and grade of gold mineralization (2000 m)	$ 280,000.00

Tac Showing	
drill test blind intrusive target if the combination of geological and geophysical data acquired in phase 1 are supportive	$ 140,000.00
Lewis Showing	
trench systematically predicated on results from soil and rock sampling programs	$ 30,000.00
bulk sample and or drill test predicated on results from trenching program	$ 80,000.00
Jack Leg Showing	
Trench and channel sample targets identified through mapping process	$ 30,000.00
Drill targets derived from combination of structural analysis, geophysical interpretation and trench sampling (1000 m)	$ 80,000.00
Dew Drop Showing	
trench and channel sample any well defined targets generated in phase 1	$ 30,000.00
TOTAL COST, PHASE 2	**$ 920,000.00**

20.0 References

Assessment reports (AR followed by a number) are referenced in the text where applicable. Reports may be viewed at the Minister of Mines Offices in Victoria, and in Cranbroook for the East Kootenay area; microfiche are available for purchase. Reports are also available as *.pdf* files from the BC ARIS web site.

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21.0 Statement of Qualifications

I, Robert I. Thompson, do hereby certify that:

1) I attained the degree of Doctor of Philosophy (PhD) in geology from Queens University, Kingston, Ontario in 1972.
2) I have a Hon. B.Sc. in geology from Queens University, Kingston, Ontario (1968).
3) I am a registered member of the Association of Professional Engineers and Geoscientists of British Columbia (P.Eng. 1972).
4) I am a Fellow of the Geological Association of Canada.
5) I have worked as a geologist for a total of 38 years since my graduation from university, all of it in the Canadian Cordillera.
6) I have worked for the BC Geological Survey (1972-74) and the Geological Survey of Canada (1974-2007) and now act as an independent consultant (2007-present).
7) I acted as a consultant to the Petroleum Department of the Bolivian Government (1990) under the auspices of PCIAC (Petro Canada International Aid Corp).
8) I have a thorough knowledge of the geology of southern British Columbia based on extensive field mapping.
9) I have authored numerous scholarly publications in peer-reviewed journals, and have published or am preparing to publish 32, 1:50,000 scale geological maps of Lardeau (NTS 82K) and Vernon (NTS: 82L) areas.
10) I was retained by 1532063 Alberta Inc., a private Canadian company, to undertake an evaluation of the Dewdney Trail Property.
11) I spent 17 days mapping the geology of the Dewdney Trail Property during the period: July 1-August 31, 2009.
12) I am the sole author of this report.
13) I am not aware of any material fact or material change with respect to the subject matter of this report, which is not reflected in this report.
14) I have no interest, direct or indirect, in 1532063 Alberta Inc. or the Dewdney Trail Property.

"signed and sealed" at North Saanich, B.C.

Robert I. Thompson, PhD, P.Eng
RIT Minerals Corp
10915 Deep Cove Rd.,
North Saanich, B.C.

Dated at North Saanich, B.C. this 3rd day of December, 2010
Reg. No. 115741 **Association of Professional Engineers and Geoscientists of British Columbia**

RIT Minerals (RITM) Corp
10915 Deep Cove Rd
North Saanich, BC V8L 5P9

CERTIFICATE OF QUALIFIED PERSON

I, Robert I. Thompson, do hereby certify that:

1. I, Robert I. Thompson, Geologist and Professional Engineer, residing at: 10915 Deep Cove Rd, North Saanich, B.C.;

2. I prepared the following report: *Geology, Exploration Programs and Results from the Dewdney Trail Property with Recommendations for Further Exploration*, dated, December, 1, 2008

3. I have the following relevant qualifications: BSc (Hons) and PhD degrees in geology (Queen's University); registered Professional Engineer in British Columbia; 37 years mapping and publishing papers on the geological evolution and mineral potential of the Canadian Cordillera; member, Geological Association of Canada; recognized internationally as expert on Cordilleran geology;

4. I spent 17 days evaluating and mapping the Dewdney Trail Property during the period: 01July-31August, 2009;

5. I am responsible for all of this report;

6. I am independent of the issuer as described in section 1.4 of NF43-101;

7. I had no prior involvement with Dewdney Trail Property;

8. I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance with that instrument and form; and

9. As of the date of this certificate, to the best of the my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

"*Robert I. Thompson*"
Signature of Qualified Person

December 3, 2010

DATED at this the 3rd day of December.

22.0 Date and Signing Page

The Technical Report titled "Geology, Exploration Programs and Results from the Dewdney Trail Property with Recommendations for Further Exploration" was completed at the request of 1532063 Alberta Inc. by the author on the date listed below.

Effective date: December, 3, 2010

"*Robert I. Thompson*"
Author: Robert I. Thompson

Signature Date: December 3, 2010

Appendix 1: A tabulation of all field data collected during the course of geological mapping in 2009

Appendix 2: Laboratory certificates for rock geochemical analyses (2009)

Appendix 3: Laboratory certificates for soil geochemical analyses (2009)

Map Folder: The figures that follow this page have been rendered at scales appropriate for viewing and (or) plotting, they are:

Figure 7-8: Geology of the Dewdney Trail Property showing observation locations, structural measurements, and locations where alteration mineralogy was observed. The reader is referred to Appendix 1 for a tabulated listing of data collected at each observation location.

Figure 9-1a: Concentrations of gold (ppb) in rock samples collected in 2005 and 2008

Figure 9-1b: Concentrations of gold (ppb) in rock samples collected in 2009.

Figure 9-2a: Concentrations of gold (ppb) in soil samples collected prior to 2009

Figure 9-2b: Concentrations of gold (ppb) in soil samples collected in 2009

Figure 9-4: Plot of AEROTEM EM profiles relative to geology. Geological contacts are shown without labeling or color differentiation of map units; the reader is referred to figure 7-8 (above) for a complete rendering of the geology

Figure 9-5: Plot of total magnetic intensity relative to geology. Geological contacts are shown without labeling or color differentiation of map units; the reader is referred to figure 7-8 (above) for a complete rendering of the geology