2007 Geological and Diamond Drilling Report

Prospect Valley Project

South British Columbia, Canada

Property Tenures: 403445, 410537-410540, 410556-410559, 506056, 506060, 506062, 506065, 516440, 516457, 516470, 516550, 516552, 516673, 516813 & 517426.

Nicola & Kamloops Mining Divisions

NTS map area: 092I/03E
BCGS maps: 092I-004, 005, 014, and 015

Centre of Property
Latitude 50°08' N Longitude 121°11' 45" W
UTM Zone 10 (NAD 27):0629000E 5555000N

Property Owner

Consolidated Spire Ventures Ltd.
615-700 W. Pender Street
Vancouver, BC
V6C 1G8

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April 7, 2008

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SUMMARY

This assessment report summarizes all the 2007 Prospect Valley Project exploration efforts completed by Consolidated Spire Ventures Ltd. The Prospect Valley epithermal gold property is located in the Nicola and Kamloops Mining Divisions of southern British Columbia, approximately 170 kilometres (106 miles) northeast of Vancouver. The claims are only 35 kilometres south of the world-class porphyry copper producing Highland Valley district. The property consists of 1 two-post, 8 four-post and 12 mineral cell title submission contiguous mineral claims, which collectively cover approximately 10,900 hectares.

Following its earned 60% interest in the project from Almaden Minerals Ltd., Spire acquired the remaining 40% interest, resulting in Spire's ownership of a 100% interest, subject to a 2% net smelter agreement (NSR) and by issuing to Almaden 4,000,000 staged fully paid and non-assessable common shares of Spire.

During the 2007 field season, Spire completed an exploration program focused on the South and North Discovery Zones (known previously as the RMX and RM Zones, respectively) at a total cost of $1,727,485. In early 2007, a program of 1,188 line-kilometres of airborne geophysics, consisting of a helicopter supported gradient magnetometer survey was carried out over the entire Prospect Valley Claim block.

Early exploration in 2007 focused on trenching and geological mapping at the South Discovery Zone. Eight trenches were excavated on 50-meter spacings throughout the hanging wall of the Early Fault Zone and were successful at finding silicification and quartz veining with Au mineralization up to 35m averaging 0.82 g/t gold. Five additional trenches were excavated in the North Discovery Zone and at the Northwest Dome Zone but not sampled.

The majority of the Prospect Valley-NIC property is underlain by the Spius Creek Formation and the Pimainus Formation of the mid-Cretaceous Spence’s Bridge Group that are dominated by basaltic to andesitic flow rocks with lesser volcaniclastic and epiclastic units. The southwest-striking Early Fault Zone (EFZ) unit was identified in 2007 as a major control for Au mineralization at the South and North Discovery Zones. The EFZ is 1 to 12 m thick (true thickness), dips moderately to the southwest at 30 to 45º, and may be traced consistently in drill holes from the South to the North Discovery Zones for over 1.7 km in strike length. The EFZ unit is interpreted as a fissure/structural vein that has characteristics similar to fault breccia and hydrothermal breccia. The EFZ/hydrothermal breccia unit cuts multiple rock types within the Spence’s Bridge Group and separates two distinct volcanic rock sequences: a hanging wall sequence of intercalated amygdaloidal basalt, mafic-phyric basalt, intraformational flow breccia, andesite (flow rock), and lesser tuff breccia; and a footwall sequence dominated by mafic-phyric basalt and volcaniclastic rocks dominated by tuff breccia and lesser interbedded sequences of crystal tuff, lapilli tuff, tuffaceous sandstone, and black carbonaceous argillite.

Hydrothermal alteration, microcrystalline quartz veins, and related Au mineralization in the North and South Discovery Zones are focused in the Early Fault Zone/hydrothermal breccia unit and the overlying rocks located in the hanging wall. Hydrothermal alteration is zoned laterally and vertically away from the Early Fault Zone. Microcrystalline quartz veins and related Au mineralization are

associated with argillic/sericitic and potassic alteration, pervasive silicification, weak to moderate disseminated pyrite, and/or weak hematization that occurs in and proximal to the Early Fault Zone in the hanging wall rocks. The area containing microcrystalline quartz veins and related Au mineralization form a mappable/geochemical target zone 1.7 km long by 140 to 230 m wide with the EFZ forming a sharp “hard” eastern boundary and lower boundary to the target. The Au mineralization correlates strongly with up to five different documented styles of microcrystalline quartz veins. The quartz veins typically have a wavy character and form stockwork zones that approach crackle breccia textures (clast-rich and puzzle textures). An alteration assemblage dominated by hematite, zeolite, and calcite with rare chlorite and quartz occurs distal to the Early Fault Zone and at depth within the Early Fault Zone. Microcrystalline quartz-rich veins significantly decrease in size and density down-dip along the Early Fault Zone based on fan drilling on cross-sections mostly in the North Discovery Zone. The down-dip extension of the quartz vein system at the South Discovery Zone warrants additional drill testing.

Another development in the geological understanding of the South and North Discovery areas is the identification of the andesite porphyry (Ap) late dike unit to cut and post date all volcanic rock units, including the Early Fault Zone, and the microcrystalline quartz vein alteration and related mineralization. The late dike rock commonly intruded the previously formed Early Fault Zone at variable stratigraphic positions but was more commonly emplaced in the footwall of the EFZ. Late faults identified as late fault zones (LFZ) and characterized by fragmental clay-rich gouge with some slickensides cut all rock units, the Early Fault Zone, microcrystalline quartz veins and related Au mineralization. The concentration of the Early Fault Zone, microcrystalline quartz veins, the late dikes, and the late fault zones in the same structural domain suggest this structure to have been active over a long period of time.

Gold mineralization at the South and North Discovery Zones is strongly associated with the presence of sheeted to wavy stockwork quartz veins and veinlets, pervasive silicification, siliceous breccia, sericitic/argillic alteration, potassic alteration (microcrystalline K-feldspar flooding of the volcanic rock and adularia in the veins), and low amounts of pyrite (generally <5% by volume). Gold concentrations can be highly variable throughout an individual drill hole but appears to be consistent over large thicknesses in a limited vertical elevation range. Although the thickness of the vertical elevation range is consistent between the South and North Discovery Zones (up to 66 m thick), the elevation range for the thick continuous Au zones varies between the two areas from 1569 to 1654 m in the South Discovery Zone to 1499 to 1561 m in the North Discovery Zone.

During the period of October 4 to November 13, 2007 a diamond drill program was carried out over the South and North Discovery Zones. Ten-NQ2 diameter drill holes totalling 1,775.35 metres were drilled along 1.3 kilometres of strike. The drill program tested the hanging wall rocks of the Early Fault Zone in the southernmost area of the South Discovery Zone, the down-dip extension to previously identified mineralization in the North Discovery Zone, and portions of the western target block of the identified mineralization/alteration trend. Two of the holes in the South Discovery Zone encountered significant Au mineralization over significant widths (DDH 2007-01 and DDH 2007-02). The drill program demonstrated strong geological continuity of the Early Fault Zone target at depth and along strike but indicates that anomalous to sub-economic Au mineralization is limited to shallower horizons (up to 66 m of vertical thickness) in the hanging wall of the Early Fault Zone.

The South and North Discovery Zones displays alteration and mineralization features consistent with Au-dominant (low Ag:Au at 4:1), base metal-poor, low-sulfidation, epithermal systems hosted within intermediate to mafic volcanic rocks. Rock analytical data indicates that elevated gold values are commonly associated with elevated concentrations of arsenic, antimony, mercury, and silver. It is believed that the exposure level of the South and North Discovery Zones at the Prospect Valley project is fairly low in the epithermal system based on the alteration distribution, Au mineralization distribution, and vein textures and mineralogy.

In a News Release dated February 11, 2008 Consolidated Spire Ventures provided a revised geological potential for a bulk mineable-low grade type gold quartz stockwork target in the Discovery Zone. "The new revised geological potential **in the Discovery Zone** considers surface widths that range from approximately 50m to 150m wide, a surface continuity (length) along strike ranging from approximately 1,400m to 2,500m and a depth, as indicated by diamond drilling, ranging from 50 to 90 vertical meters. Using an average specific gravity (s.g.) of 2.4, a tonnage range from approximately 1.2 to 81 million tonnes can be estimated. Considering an average grade range of **0.80g/t to 1.40g/t gold**, that would give a geological potential ranging from approximately **310,000 to 3.7 million ounces of gold.**" The minimum case geological potential has been lowered to 216,053 (from 310,000 ounces noted in the February 11, 2008 news release) based on the minimum variables described above.

<u>Cautionary statement</u>: Investors are cautioned that the potential quantity and grade indicated above is conceptual in nature. It has been provided only for illustration purposes. At this time, there has been insufficient exploration to define a mineral resource and it is uncertain if further exploration will result in the discovery of these mineral resources.

The 2007 diamond drill sampling program reported numerous anomalous to locally economic gold-enriched sample intervals. The gold enriched intervals are most highly concentrated over several metres width, located above and in close proximity to the EFZ contact. To date, the majority of the more strongly anomalous zones contain gold values grading between 0.3 to 1.0 g/t Au, with local increases varying between 2.0 to 12.3 g/t Au.

The South and North Discovery Zones are the priority targets at the Prospect Valley project. A comprehensive follow-up exploration program at the Prospect Valley Project is recommended that includes: airborne EM survey of the entire property; reconnaissance mapping and prospecting of magnetic low anomalies determined from the 2007 property-wide total field gradient magnetometer survey; mechanized trenching in areas of till cover and areas containing abundant quartz vein float that is focused on the northeastern extension to the previously identified North Discovery Zone; detailed geological mapping of the numerous targets identified in previous programs and during the 2007 reconnaissance program; continued diamond drilling of the South Discovery Zone and North Discovery Zone immediately in the hanging wall rocks of the Early Fault Zone (on 100 m drill hole spacings); and a first round of drilling in the extensions of the Early Fault Zone to the northeast of the North Discovery Zone mineralized trend.

2.0 INTRODUCTION AND TERMS OF REFERENCE

2.1 Introduction

This report summarizes the 2007 Prospect Valley Project exploration work program carried out by Consolidated Spire Ventures Ltd. The Prospect Valley property is an epithermal gold project, located approximately 30 km west-southwest of Merritt in southern British Columbia. It sits 35 kilometres south of the world-class porphyry copper producing Highland Valley district. Consolidated Spire Ventures Ltd. ("Spire") has 100% ownership of the Prospect Valley property. Total expenditures for the 2007 exploration program were $1,727,485. Recommendations contained herein are for the following: construction of access roads to the project site, geological mapping throughout the property and on previously identified specific targets, mechanized and hand trenching, rock-chip sampling of outcrops and trenches, and further diamond drilling.

2.2 Terms of Reference

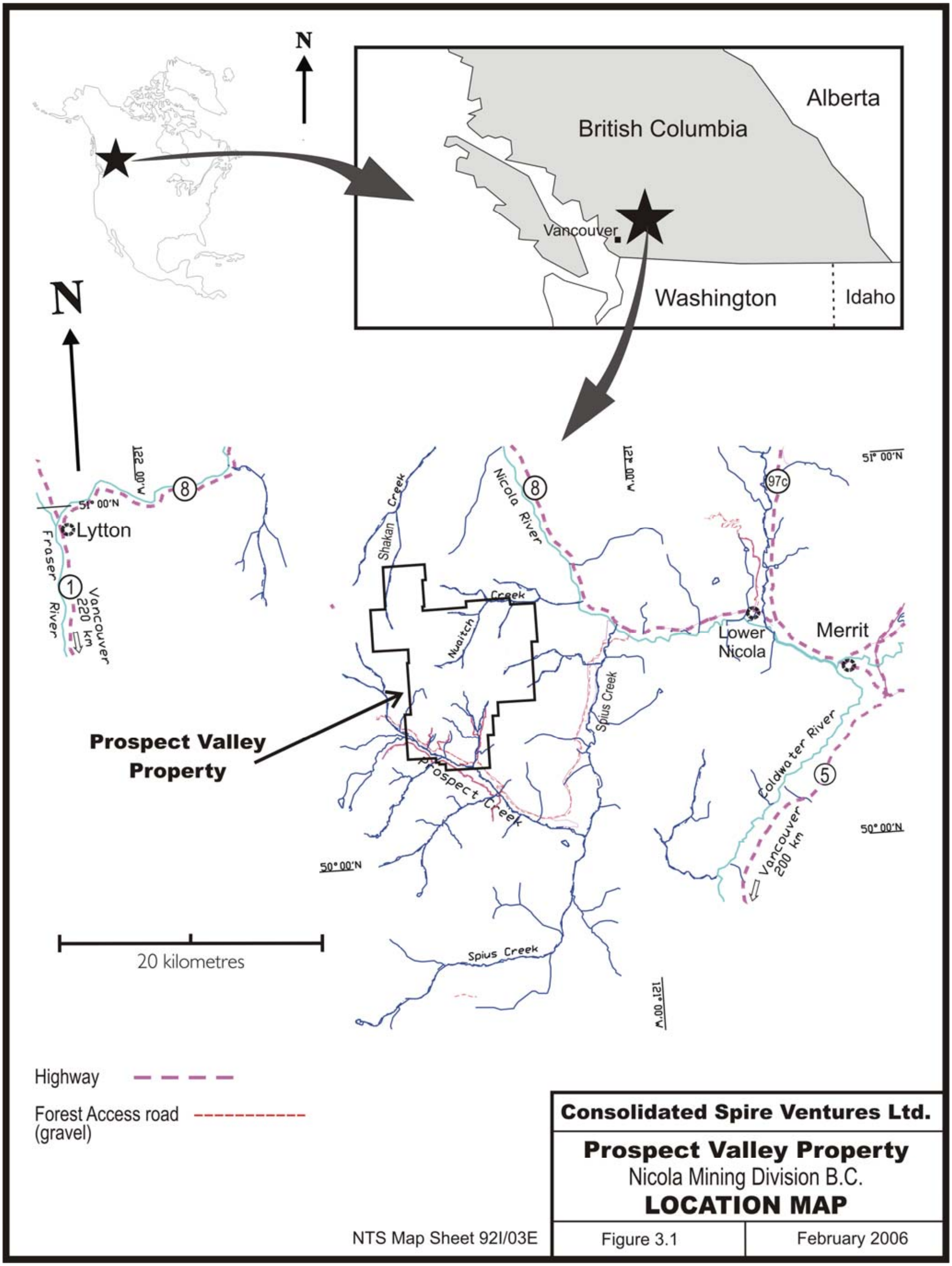
Mr. Brian Buchanan, president of Spire, and Mr. Victor Jaramillo, Exploration Manager for Spire, requested the primary author (Todd Johnson) review the company's 2007 exploration efforts and to prepare a British Columbia Government compliant assessment report. The primary author was able to complete the majority of the report by December 6, 2007; however, certain parts of the report were completed and finalized by Victor Jaramillo, Exploration Manager for Spire, for the following reasons: (1) the time period for Todd's consulting contract expired on December 7, and (2) because final assays and total 2007 expenditures were not finalized by Dec. 6, 2007. The primary author, Todd Johnson, was responsible for the following activities during the 2007 Field Season: geological outcrop and trench mapping and compilation; geological cross-section generation and interpretation; targeting of the diamond drill holes; the supervision of the sampling and logging related to the 2007 diamond drill core including geological and geotechnical logging and QA/QC procedures related to the diamond drilling, and supervision of Svetlana Tikhomirova, a consulting geologist, who logged almost all of the core. Victor Jaramillo was responsible for management of the 2007 field program and also supervised the 2007 trenching work that included the locating, sampling, and associated QA/QC procedures. Consolidated Spire Ventures Ltd is a publicly trading company listed on the Toronto Venture stock exchange (symbol TSX.V: CZS). All currencies are in Canadian dollar denominations and measurements are in metric units (unless noted otherwise).

3.0 PROPERTY DESCRIPTION AND LOCATION

3.1 Area and Location

The Prospect Valley property is dominantly located in Nicola Mining Division of south-central British Columbia, Canada. A few claims, on the northwest corner of the property, are in the Kamloops Mining Division. The property is centred about 30 km west-southwest of Merritt, at latitude 50^{0} 08' 00" North and longitude 121^{0} 11' 45" West (UTM Zone 10, NAD 27: 0629000E / 5555000N) on NTS map 92I/3 (BCGS maps: 092I-004, 005, 014, and 015) (Figure 3.1).

The property is approximately 170 km (106 miles) northeast of Vancouver or approximately 90 km (56 miles) southwest of Kamloops. The claims are only 35 kilometres south of the world-class


N
Alberta
British Columbia
Vancouver
Washington
Idaho
N
121° 00'W
51° 00'N
Lytton
Fraser River
Vancouver 220 km
8
1
Shakan Creek
Nicola River
8
121° 00'W
51° 00'N
97c
Creek
Nuaitch
Spius Creek
Lower Nicola
Merrit
Coldwater River
5
Vancouver 200 km
50° 00'N
Prospect Valley Property
Prospect Creek
50° 00'N
20 kilometres
Spius Creek
121° 00'W
Highway
Forest Access road (gravel)
Consolidated Spire Ventures Ltd.
Prospect Valley Property
Nicola Mining Division B.C.
LOCATION MAP
NTS Map Sheet 92I/03E
Figure 3.1
February 2006

porphyry copper producing Highland Valley district; historical records report a near aggregate of 2 billion tonnes were exploited at an average copper equivalent of 0.45% (Leriche, 1990).

3.2 Accessibility, Climate, Local Resources, Infrastructure, Physiography

The Prospect Valley property is located approximately 170 km (106 miles) northeast of Vancouver. It is an approximate three and half hour drive from Vancouver to the property. The claims are centred about 30 km west-southwest of Merritt, the closest full service community, which provides extensive infrastructure and skilled manpower. There is intermittent cellular phone access on the property, however an analog high-power handset is necessary.

The southern, northern and eastern extents of the property are easily accessible via a combination of paved highway and a network of gravel roads and trails. Road access is available via Provincial Highway No.8 from Merritt 18 kilometres west to the old community of Canford, then about 30-35 kilometres southwest via the Edgar Creek or Sunshine Valley/Spius Creek - Prospect Creek - Hooshum/Teepee forestry gravel road systems. An ATV trail was constructed in June 2007 from the southern part of the Prospect Valley claim block to the South and North Discovery Zones. The eastern part of the property (NIC claims) is accessible via the Edgar Creek Forestry gravel road, while the main trunks of Hooshum and Teepee roads pass through the southern PV claims. A number of old, but serviceable logging spur-roads branch off from these main roads, providing access to the south and east parts of the property. The north-central portion of the property has limited access, where helicopter support is necessary.

The claims are situated within the Intermontane Physiographic region of rolling upland terrain on the southern Interior (Nicoamen) Plateau, adjacent to the northeast flank of the Cascade Mountains. Topography is moderate to locally steep, with elevations ranging from 900 metres (3,000 ft) in the river valleys of the northeast and southern limits of the property to about 1900 metres (6,230 ft) along the mountain peaks of the central and northwest claim areas. The property covers three large river drainages which pass northward to the Nicola River: they are the Shakan, the Nuatich and the Prospect creeks, located to the north, east and south parts of the property respectively. These rivers and some lesser tributaries can provide all water necessary for exploration purposes.

Soil and glacial-till cover is extensive and commonly quite deep (to >5m). In general, the sparse bedrock exposures are largely restricted to road cuts, steep slopes and local topographic highs. The local glacial ice-flow direction, identified by Almaden, is about 192^o (recognized from glacial striae in 2002 trenches).

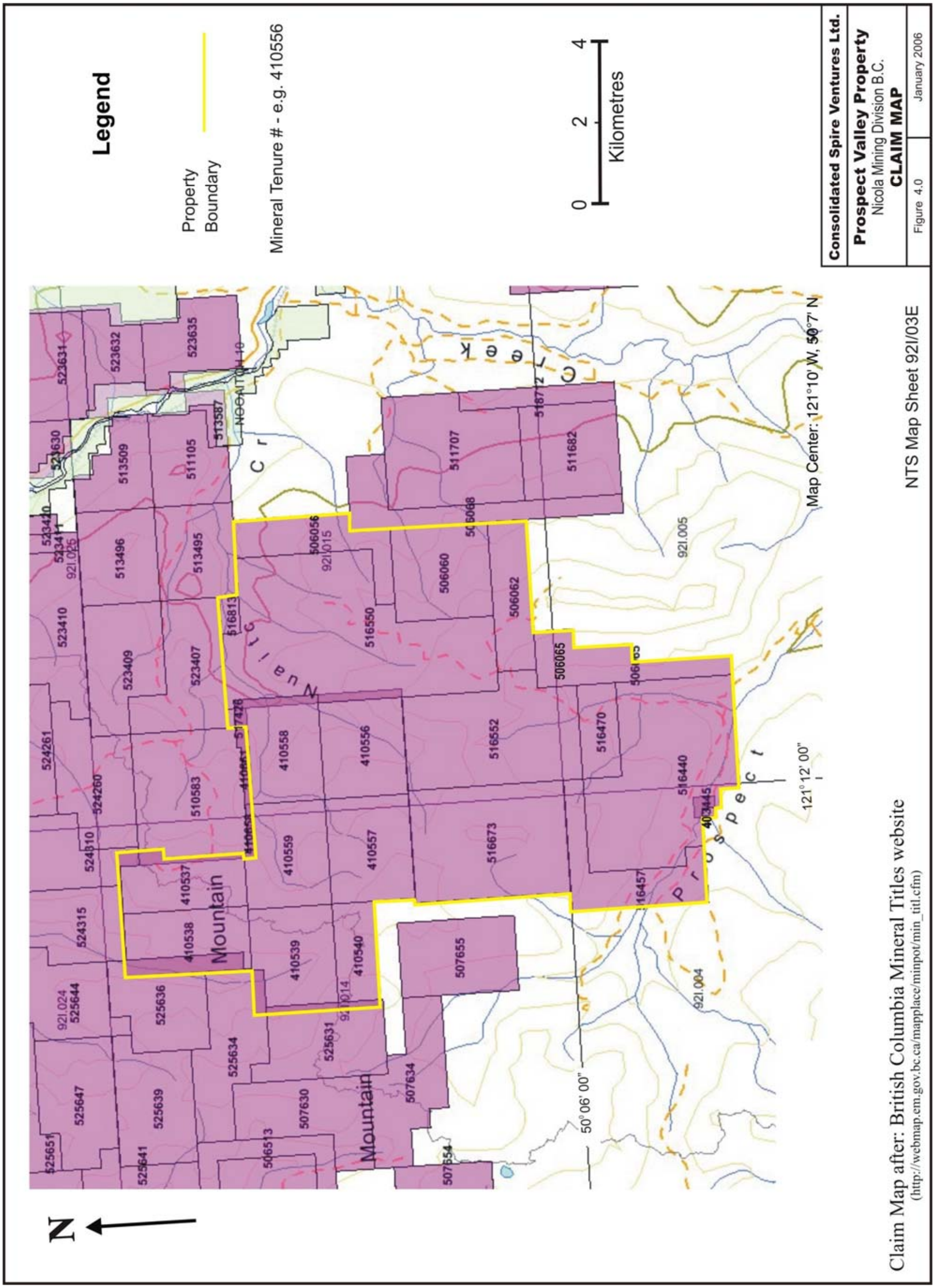
The property climate is semi-arid and is generally free of snow from early June through October. The Government of Canada weather website (www.weatheroffice.ec.gc.ca) reports the weather statistics for the community of Merritt as follows. (Note: while the Prospect Valley property is only 30 km from Merritt, it is at a higher elevation, therefore the temperature ranges and total of precipitation will tend to be more extreme.) The average yearly rainfall is about 322 mm, with a semi-regular distribution of precipitation throughout the year, although the months from November to January tend to be wetter. Summers are hot and dry, with average daytime temperatures from 5 ^oC to 26 ^oC (extreme summer high: ~40 ^oC). During the winter, the average daytime temperatures range from 5 ^oC to –10 ^oC (extreme winter low: -42 ^oC). Average annual snowfall in the area is about 83cm. An extensive snow pack will prohibit most winter work, particularly on those portions of the property at higher elevations.

Vegetation consists mainly of widely spaced lodge pole pine and Douglas fir grading to more dense balsam fir, spruce, and alder along creek valleys. Portions of the original PV claims have been previously logged, during the 1960s. Segments of the property are used by local ranchers for cattle grazing, particularly at lower elevations.

4.0 CLAIMS AND TITLE

In February and July of 2005, Spire staked an additional six mineral cell title submission titles on the east side of the property, acquiring an additional 2,562.935 hectares. Currently, the property consists of 1 two-post, 8 four-post and 12 mineral cell title submission contiguous mineral claims, which collectively cover approximately 10,900 hectares of land (see Appendix A). The “good to dates” for the property claims range from April 27, 2009 to 2014. The claim statistics, summarized in Appendix A, is not a legal title opinion but is a compilation of claims data, based on the author's review of the Government of British Columbia mineral rights inquiry website (see References in Section 17.0). Figure 4.0 illustrates the locations of each claim. The claims have not been legally surveyed. Note: The Government of British Columbia converted its’ mineral titles system to a fully digital and online system in January 2005. As a result, the current claim data are different from those noted in the 2004 assessment report.

The Prospect Valley property claims are 100% owned by Consolidated Spire Ventures Ltd., a publicly trading company on the TSX Venture exchange.


Legend
Property Boundary
Mineral Tenure # - e.g. 410556
0 2 4
Kilometres
Consolidated Spire Ventures Ltd.
Prospect Valley Property
Nicola Mining Division B.C.
CLAIM MAP
Figure 4.0
January 2006
NTS Map Sheet 92I/03E
Map Center: 121°10' W, 50°7' N
121° 12' 00"
50° 06' 00"
N
Mountain
Claim Map after: British Columbia Mineral Titles website
(http://webmap.em.gov.bc.ca/mapplace/minpot/min_titl.cfm)

5.0 GOLD EXPLORATION TARGETS

The Prospect Valley property is an epithermal gold exploration venture. To date, over 13 target areas have been identified in the claim block (Fig 5.0). The majority of the targets are located in the center of the claim block along a prominent northeast trending linear zone and includes: the South Discovery Zone (formerly called the RMX Zone), the North Discovery Zone (formerly called the RM Zone), the Northeast Extension Zone, and the Northeast Trend Zone. Other targets are located immediately to the west of the main northeast trend and include: the Northwest Dome Zone, the Ridgeline Zone, and the Crown Zone. Another set of targets lie along a separate parallel northeast-trending zone spaced approximately 2200 to 3500 m from the aforementioned targets and include: NIC, MAG A, and MAG B. One target called the SE MAG LOW lies in the south-central part of the claim block between the two northeast-trending target zones. The Bonanza Valley target (formerly called the PV Zone) lies on the southwestern corner of the claim block.

Each of the aforementioned targets are in different stages of exploration and summarized in the table below. Localized property grids oriented at an a azimuth of 130º for the South and North Discovery Zones and 120º for the NIC Zone were surveyed in 2006 and silt sampling, ground magnetometer and IP geophysical surveys were systematically completed on the grid at various line spacings. Detailed geological mapping at 1:1000 scale has been conducted at the South and North Discovery Zones, and most of the Northwest Dome Zone. Reconnaissance geologic mapping at 1:5000 scale was initiated in 2007 at the NIC Zone, in the north-central part of the claim block, and in the northwestern corner of the claim block. Trenching has been conducted in the South Discovery Zone, North Discovery Zone, Northwest Dome Zone, the Bonanza Valley Zone, and the NIC Zone. Drilling in 2006 (28 diamond drill holes) was focused in the South Discovery Zone, North Discovery Zone, and the NIC Zone. Drilling in 2007 (10 diamond drill holes) was focused in the South Discovery Zone and the North Discovery Zone.

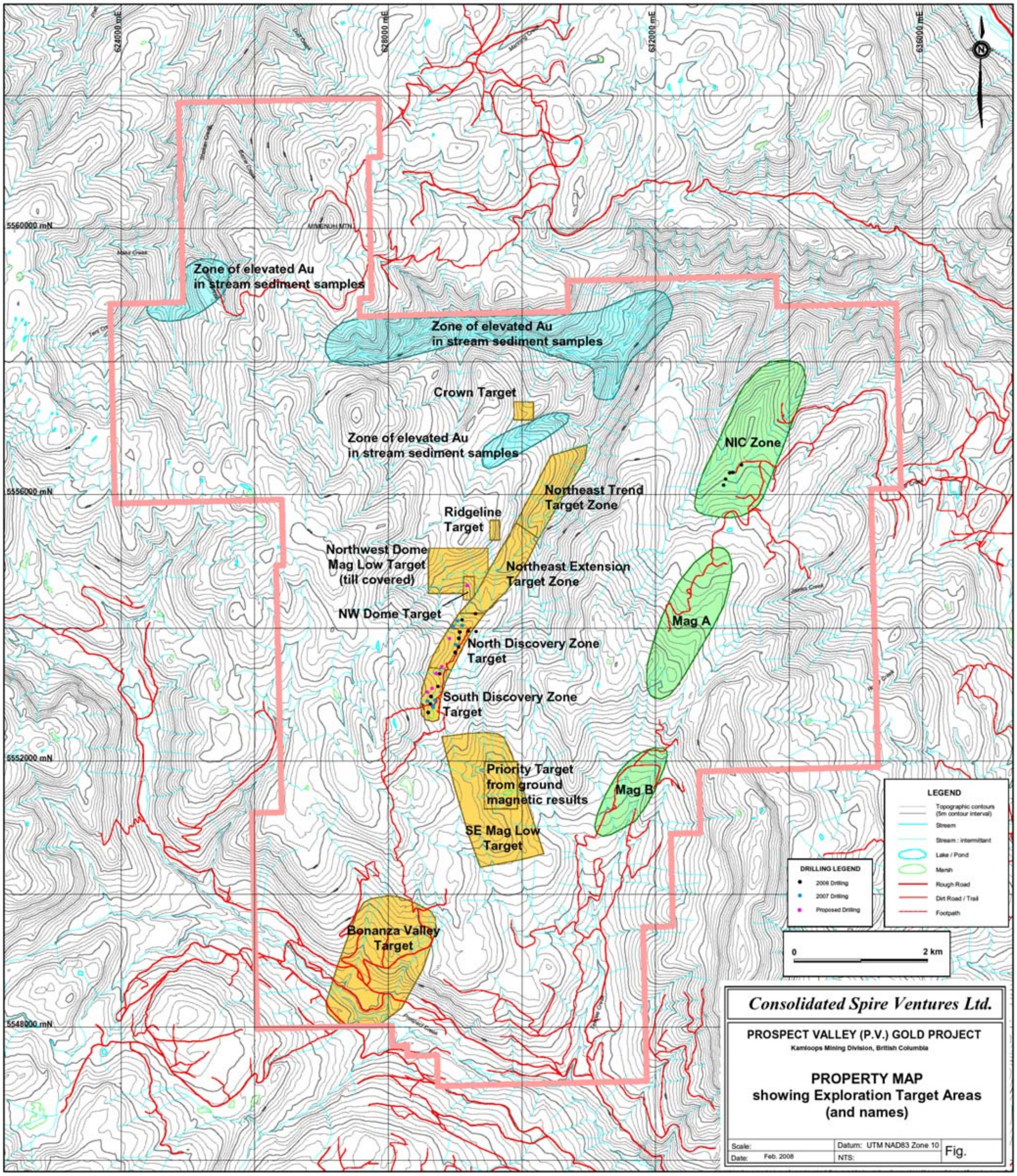


Figure 5.0. To date a total of 13 target areas have been identified in the claim block. The majority of the targets are located in the center of the claim block

Table 5.1. List of exploration target areas at the Prospect Valley Project showing the various stages of exploration conducted from 2001 to 2007.

Target Area	**Soil Sample Survey**	**Ground Magnet-ometer Survey**	**Ground IP Survey**	**Prospecting and Rock-Chip Sampling**	**Detailed Geological Mapping (1:1000 scale)**	**Reconn Mapping (1:5000 scale)**	**No. of Excavated Trenches**	**Diamond Drill Holes**
South Discovery Zone	X	X	X	7	Done	NA	19	13
North Discovery Zone	X	X	X	6	Done	NA	24	20
Northwest Dome Zone	X	X	X	2	Done	NA	3	0
Northeast Extension	South half done	South half done	South half done	1	0	0	0	0
Northeast Trend	0	0	0	0	0	0	0	0
Northwest Dome Mag Low	X	Most Done	Most Done	0	Partially Done	Mostly Done	0	0
Ridgeline	0	0	0	0	0	Started	0	0
Crown	0	0	0	0	0	Started	0	0
NIC Zone	X	X	0	40	0	Half Done	>1	5
MAG A	0	0	0	0	0	0	0	0
MAG B	0	0	0	0	0	0	0	0
SE Mag Low	Partial	0	0	0	0	0	0	0
Bonanza Valley	X	0	0	<40*	0	0	0	0

Notes: (1) Property-wide exploration includes stream-sediment sampling and airborne magnetic gradient survey
(2) * approximate number of rock-chip samples collected from surface at Bonanza Valley from personal communication with Brian Buchanan in 2007
(3) "X" indicates survey completed at various grid spacings
(4) NA = not applicable

Early 2001 to 2003 exploration efforts focused on both the Bonanza Valley Area and to a lesser extent on the NIC Zone (located on the northeast property corner). The 2004 reconnaissance exploration efforts identified three additional target areas, gold Anomaly Clusters 1 to 3, which are located at the centre and northern portions of the claims. In addition, Almaden 2001-3 regional reconnaissance silt surveying and prospecting has identified a number of very early stage geochemical silt sample anomalies (Au, As, Sb, Mo and/or Hg) on the property's northwestern claims.

The follow-up 2005 exploration program focused solely on the South Discovery Zone and the North Discovery Zone which were formerly called the RMX and RM Zones, respectively. South and North Discovery Zones include an extensive north to northeastward trending multi-element soil anomaly and a number of hand trenches, which report highly anomalous gold credits.

The 2006 exploration program was mainly directed towards an extensive diamond drill evaluation of the South and North Discovery Zones. The secondary NIC target zone was also evaluated through a smaller and less comprehensive drill program.

6.0 EXPLORATION HISTORY

(Modified after Jakubowski and Balon 2003, Balon 2004, and Moore 2004, 2005)

6.1 'Pre-Spire' Explorations

There are no published records of any property mineral exploration efforts carried out prior the 2001-2003 Almaden exploration programs. There are no documented mineral occurrences for the Prospect Valley property, in the BC Minfile database.

However, there is ground evidence of past small-scale placer mining activity along Prospect Creek (south end of the property) and in the Shakan Creek drainage (northwest property corner). A brief reference to historical placer gold from Shakan Creek appears in the 1933 Report of the BC Minister of Mines. The upper reaches of this drainage constitute a designated placer area since 1987.

Parts of the original PV claim area were occupied by two former mineral tenures.

1) LAD and LAD 1 claims: 1988; located by D. Gagne of Chase, BC; forfeited OCT/1989
2) VAL 1 to VAL 8 claims: 1995; located R. Gale of West Vancouver, BC; forfeited MAY/1996

The LAD claims were likely staked to cover the suspected source area of quartz vein float occurrences. The VAL claims were undoubtedly staked to cover the source area of a gold stream silt anomaly (Bonanza Creek drainage) identified by the 1994 public release of BC Government Regional Geochemical Survey data (BC RGS 40/GSC OF 2666). There is no documentation for any subsequent work performed on the LAD or VAL claims. Note: the BC government Regional Geochemical survey was initially released in the early 1980's but the samples were not analyzed for gold. It was in 1994 that the gold analyses were carried out and released.

In July 2001, Almaden (Jakubowski and Balon) examined the same 1994 BC-RGS stream sediment anomaly, noted above. Follow-up sediment sampling in the Bonanza Creek drainage (PV 1 claim) confirmed the anomalous gold values and revealed a moderate abundance of banded chalcedonic quartz float in the same stream channel. Subsequent prospecting upstream and in the local area revealed numerous other gold-bearing quartz vein and breccia float occurrences. These results, plus the presence of widespread alteration in a nearby prospective rock unit, prompted staking of the original PV claim block.

In 2001, Almaden carried out a limited multi-staged field program on the original PV claim block area, which included prospecting and reconnaissance scale geochemical sampling. The bulk of the 2001 work was completed prior to and during property acquisition.

Intermittently between June 10th and October 25th 2002, Almaden conducted a follow-up program on the original PV claim block. The program consisted of initial coarse grid soil geochemistry, multiple stages of detailed (& infill grid) soil geochemistry, portable auger soil sampling, further prospecting and reconnaissance sampling (rock, silt, soil), plus mechanical excavator trenching and/or test pitting with related mapping and rock/basal soil sampling.

In the summer of 2003, Almaden carried out further exploration efforts on and around the original PV claim block (PV1 to PV 36). Work carried-out included additional limited soil-rock sampling, prospecting, five kilometres of test IP-Resistivity geophysics (five-one kilometre long lines) and regional reconnaissance sampling. In conjunction with the 2003 exploration efforts, Almaden staked numerous 2-post claims surrounding the PV claim block and the separate NIC claim block (now included within the NU 1 to 4 claims).

In March 2004, Almaden optioned the original PV and NIC claim blocks to Spire. Shortly afterward (May 2004), Spire staked the adjoining ground between the PV and NIC claim blocks and additional land to the northwest; covering Almaden reconnaissance geochemical anomalies to the north of the original PV block.

6.2 Consolidated Spire Ventures 2004 Exploration (Moore, M. P. 2005: Assessment Report 2779)

During the summer and late fall of 2004 Spire conducted a two-part exploration program on the Prospect Valley Project. Rio Minerals Ltd of Vancouver BC was contracted to complete all fieldwork, under the supervision of Andrew Molnar. See Sections 6.4 and 8.0 for more details.
Work was carried out on claims NU 1 to NU 10 and PV 37 to PV 40.

1) July 4 to July 31, 2004
   NIC Zone: control grid, with soil sampling and prospecting
   Central Property: helicopter/road access silt sampling and prospecting
   Samples collected: 2 rocks, 860 soils and 90 silts.
   Control grid kilometres (NIC): 32.2 km

2) Nov 4 to Nov 11, 2004
   NIC Zone: Discovery Zone trench extension and numerous soil test pits on soil gold highs
   Central Property (gold Anomaly Clusters 1 to 3): Limited prospecting, reconnaissance contour soil lines and hand trenching.
   Samples collected: 23 rocks and 137 soils
   Reconnaissance soil lines: 6.45 km

6.3 Consolidated Spire Ventures 2005 Exploration (Moore, M. P. 2006: Assessment Report 28162)

During the summer and late fall of 2005 Spire conducted a two-part exploration program on the Anomaly Cluster 1 area and the associated RM 'discovery trench' zone. Rio Minerals Ltd of Vancouver BC was contracted to complete all fieldwork, under the supervision of Andrew Molnar. Work was carried out on claim tenures 410556, 410557, 516552 and 516673.

June to October 2005
RM Zone: Work carried out includes a two-part control grid (RM and RM extension), grid based soil sampling & prospecting, hand trenches & helicopter pads.
Samples collected: 4 prospecting rocks, 302 trench rocks, and 3,722 soils.
Control grid kilometres (RM & RMX grids combined): 92.5 km (covering ~ 8.4 km^2)
Trench data: 33 hand-dug trenches totalling 324 metres in length. Helicopter landing pads: 2

6.4 Consolidated Spire Ventures 2006 Exploration (North Discovery Zone or RM/South Discovery Zone or RMX Zone; Thomson, G.R., 2007: Assessment Report 28162)

During the late winter, spring, summer and late fall of 2006 Spire conducted a geophysical, geochemical and diamond drilling exploration program on the North Discovery Zone (formerly referred to as the RM Zone) and the South Discovery Zone (formerly referred to as the RMX mineral zone). Work was carried out on claim tenures 410556, 410557, 516552 and 516673.

<u>January to April, 2006</u>
RM/RMX Zone: Geophysical surveys consisting of Magnetometer and IP totalling 45-line kilometres carried out by Scott Geophysics Ltd. of Vancouver, BC. Preparation was also carried out on the drill core logging and sampling facility in Merritt by Rio Minerals Ltd.

<u>May to July, 2006</u>
RM/RMX Zone: Diamond drilling of 23 drill holes, totalling 3734.6 metres, requiring preparation and construction of 14 drill pads. Two additional pads were partially prepared, but not used for drilling. All drill work and related field activities were carried out using helicopter support. Drill pad construction work was carried out by crew workers of Rio Minerals Ltd. Diamond drilling was carried out by Falcon Drilling Ltd. of Prince George, BC.

<u>June to July, 2006</u>
NIC Zone: Diamond drilling of five drill holes totalling 1344.0 metres. Holes targeted a known epithermal quartz zone as well as geochemical targets. Diamond drilling was carried out by SCS Drilling Ltd. of Merritt, BC. A magnetometer survey was carried out over a portion of the NIC grid by Rio Mineral Ltd. Exploration work on the NIC zone was carried out on claim tenure 516550

<u>October to November, 2006</u>
RM/RMX Zone: Infill grid establishment by Rio Minerals Ltd. to southeast of RMX zone and to northwest of RM zone with geochemical sampling and magnetometer surveys. See figures 8.2g and 9.3b.

6.5 Consolidated Spire Ventures 2007 Exploration (Discovery South and Discovery North Zones)
During the spring, summer and fall of 2007, Spire conducted geophysical, geochemical, real-time-kinematic GPS survey, detailed and reconnaissance geological mapping, trenching, and diamond drilling exploration program focused on the South and North Discovery Zones. See Sections 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, and 14.0 for more details. Work was carried out on claim tenures 410556, 410557, 516552 and 516673.

<u>May to June, 2007</u>
PV Claim Block: A geophysical study consisting of a helicopter (airborne) magnetometer survey totalling approximately 1,188-line kilometres was carried out by Aeroquest International, Ltd., Vancouver, BC. Topographic base maps including color aerial photographs (1:5,000 scale) were made by Eagle Mapping Ltd., Port Coquitlam, B.C. Ed Frey (geological consultant, Vancouver, B.C.) conducted prospecting and mapping from May to June throughout the central core of the PV claim block and collected 18 rock-chip samples. An ATV trail approximately 4 km long was constructed by

field personnel employed by Consolidated Spire from the south-central part of the PV claim block to the north-central part of the PV claim block.

June to September, 2007
South and North Discovery Zones: Trenching totalling 645 linear meters was conducted by work crews employed by Consolidated Spire. Geological outcrop and trench mapping was conducted by Todd Johnson (geological consultant, Sparks, Nevada) with focus in the South and North Discovery Zones, the Northwest Dome Zone, and some reconnaissance mapping in the northwest corner and the north-central edge of the PV Claim Block. A real-time Kinematic GPS survey was conducted by Bob Lafreniere (consultant from Chilliwack, B.C.) on August 20-21, 2007. James Stewart (Geological Consultant, Vancouver, B.C.) made two separate visits to the Project on June 10-14, 2007, and on September 2-6, 2007 to review the geology and help in drill hole targeting concepts.
Samples collected: 32 prospecting rocks, 131 trench rocks.

October to November, 2007
South and North Discovery Zones: Diamond drilling of 10 drill holes, totalling 1775.35 metres, was conducted from October 4 to November 13, 2007. Field personnel employed by Consolidated Spire prepared and constructed the 10 drill pads. Two additional pads were also constructed, but not used for drilling. All drill work and related field activities were carried out using helicopter and ATV support. The initial drill pad construction was managed by Laurier Bonsant who was the main driller at the PV Project in 2006. Diamond drilling using a Zinex Mining Corp. Model A5 drill rig was carried out by Full Force Diamond Drilling Ltd. of Peachland, BC. All diamond drill core was flown by helicopter to Merritt and processed at the Merritt field office. Helicopter support for the drilling and access throughout the 2007 field season was with a Jet Ranger and a Bell 407 contracted through Valley Helicopters based in Merritt and Hope, B.C. Geochemical analyses of the diamond drill core, along with the trench samples, were conducted by Eco Tech Laboratories Ltd., Kamloops, B.C.

November to December, 2007
South and North Discovery Zones: Assessment reports for 2007 and exploration report plans for 2008 were carried out from November 20 to December, 2007 by geological consultants (Todd Johnson, Svetlana Tikhomirova) and Victor Jaramillo.

Statement of 2007 Costs: Prospect Valley Project
For the period **January1 to November 30, 2007**

Note:
Mr. Shiraz (Raz) Hussein C.F.O. & Secretary, on behalf of the Spire board of directors, has provided and approved the P.V. related exploration expenditures statement. The authors have not verified these expenditures.

CONSOLIDATED SPIRE VENTURES LTD.
Statement of Mineral Property Costs
As at November 30, 2007

	Nine months ended Nov 30, 2007	Nine months ended Nov 30, 2006
Prospect Valley Gold Property, British Columbia		
Accommodation and meals	45,779	119,287
Amortization	6,791	-
Assays and geochem	14,547	40,341
Consulting and geological	235,334	62,635
Drafting, maps and printing	37,253	31,718
Drilling	402,634	661,615
Expediting	7,268	2,884
Field supplies	73,374	90,428
Geologists's support incl. field crew	261,531	478,075
Surveys	142,419	81,647
Transportation, incl. helicopter support	500,555	543,751
	1,727,485	2,112,381

A total of $84,032.19 was recently applied to the claims for assessment purposes. The remaining $ 1,643,452.81 has been credited to the Spire PAC account and can be used for future assessment work on PV if needed.

7.0 TOPOGRAPHIC AND AERIAL BASE MAPS

Eagle Mapping constructed a set of topographic and aerial photographic maps at 1:5000 scale for the Prospect Valley claim block. A total of 7 base maps cover the entire claim block which includes topography on 5 m contour intervals, ponds, intermittent streams, streams, swamps, existing roads, and vegetation/tree clusters. The maps were flown for topography in 2004, oriented by the B.C. government, and photographed at a scale of 1:30,000 using a horizontal datum of UTM NAD83 Zone 10, and a vertical geodetic datum. The final maps were revised in May 2007. These base maps were used for all subsequent mapping activities in 2007 and plotted at various scales.

8.0 GEOLOGIC SETTING

8.1 Regional Geology (modified from Jakubowski 2003; see Figure 8.1)

The Prospect Valley property lies within the Southern Intermontane Tectonic Belt of the Canadian Cordillera. Regional bedrock geology is shown on Figure 8.1, which has been compiled and condensed from parts of GSC Maps 41-1989 (Monger, 1989) and 42-1989 (Monger and McMillan, 1989).

Lithologies within the Prospect Valley region include successions of Mesozoic (248-65 Ma) to Tertiary (65-1.8 Ma) volcanic and sedimentary rocks, which have been intruded by plutons of various compositions and ages from Late Triassic and/or Jurassic to Miocene(?). Locally thick deposits of Pleistocene and recent glacial till and alluvium are prevalent in all of the major creek or river valleys. Much of the region was overridden during the last Pleistocene glaciation by ice moving southeastwards, but more directly southwards across the claims area (Nicoamen Plateau; Ryder, 1975). Certain bedrock occurrences, uncovered during the 2002-trenching program, have glacial striae trending 192^{o}.

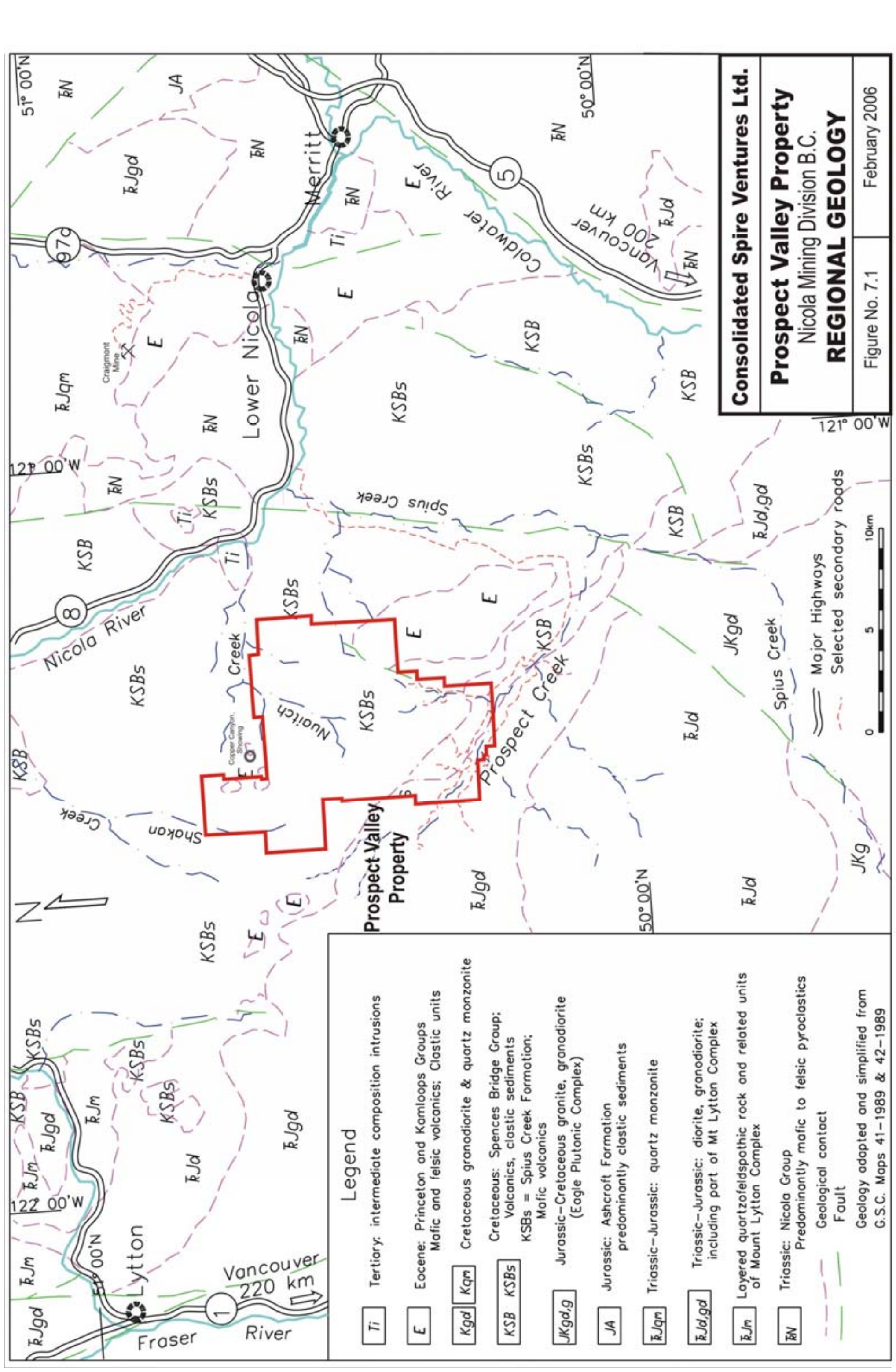
The dominant rock assemblage underlying the property and the adjacent areas is the mid-Cretaceous Spences Bridge Group (units KSB / KSBS in Figure 8.1) that forms a 215 km long, northwest-trending, linear, volcanic belt that spans from the towns of Pavilion to south of Princeton (Thorkelson and Rouse, 1989). The Spences Bridge Group is related to continental arc subduction-related volcanism and is exposed in a 115 km long northwest-trending Cretaceous structural depression called the Nicoamen Syncline which formed as the volcanic rocks were deposited (Thorkelson and Smith, 1989).

The Spences Bridge Group consists of two principal lithostratigraphic units based on work by Thorkelson and Rouse (1989). The Pimainus Formation (KSB in Figure 8.1) forms the lower unit, is 2.5 km thick, and consists of basaltic to rhyolitic lavas intercalated with pyroclastic rocks consisting of welded and nonwelded ignimbrite, tuff, lahar, conglomerate, sandstone, mudstone, and coal. The Spius Formation (KSBS in Figure 8.1) forms the upper unit, is 1 km thick, and consists mostly of amygdaloidal andesite and basalt with some scoria and minor pyroclastic and epiclastic rocks (Thorkelson and Rouse, 1989; Thorkelson and Smith, 1989). The Spius Formation was formerly called the Kingsvale Group by early government geologists (Rice - 1947, Duffell and McTaggart - 1952, and others prior to Thorkelson - 1985). Both volcanic units were subaerially deposited, concurrent with folding and faulting, and share a contact that varies from gradational to unconformable, and is locally faulted. Thorkelson and Smith (1989) identify the Spius Formation to be slightly more alkaline than the Pimainus Formation and characterized by higher levels of high-field-strength elements. Volcanic rocks of the Spences Bridge Group near the Prospect Valley Project have variable strikes and dips with dips that typically range from 15 to 35º (Monger and McMillan; 1989).

Dating of the Spences Bridge Group volcanic rocks using Rb-Sr (whole rock?), U-Pb on zircon, K-Ar on hornblende and biotite, and paleobotany (fossil leaves) and palynology indicates the volcanic rocks to be late Albian (ranging from 96.8 - 104.5 Ma; Thorkelson and Rouse, 1989; Thorkelson and Smith, 1989). Rocks of the Spences Bridge Group are believed to have formed as a chain of stratovolcanoes associated with subsiding, fault-bounded basins. Thorkelson and Smith (1989) suggest the difference in volcanic rock lithologies from the Pimainus to the Spius Formation reflect a transition from stratovolcano to shield morphology.

The Spences Bridge Group unconformably overlies older plutonic rocks, mainly granodiorite to diorite/gabbro, of the Triassic-Jurassic Mount Lytton Complex (TrJgd) immediately southwest of the Prospect Valley area. The Spences Bridge Group is overlain by Tertiary (Eocene; 33.7 - 54.8 Ma) mafic to felsic volcanics of the Princeton and Kamloops Groups (Ep and Ek). These younger volcanic units are cut by small Miocene (?) (5.3-23.8 Ma) intrusions of intermediate composition (Ti).

During and after the deposition of the Spences Bridge volcanic rocks, the Prospect Valley region was affected by at least two major episodes of regional deformation including: (1) a compressional event(s) related to the uplift of the Mount Lytton Plutonic Complex and associated with coeval broad warping of the Spences Bridge Group during volcanic rock deposition; and (2) extension and compression related to dextral wrench faulting of the Fraser River Fault System that formed pervasive transtensional block faulting of Eocene age with subsequent horst and graben formation (Monger, 1985; Monger and McMillan, 1989a). The Fraser River Fault System dextrally offsets older structures by 80-100 km (Monger and McMillan, 1989). The major structural features in the region are steeply dipping normal faults, parallel and subparallel with those of its western bounding Fraser River fault system. The normal faults have two dominant trends, one at 140º-150º and the other due north. One such latter feature is defined by the prominent Spius Creek fault (located 8 km east of the property), which extends northerly for over 40 km, through to and beyond the Highland Valley copper district. Local reverse faults, minor folding and dextral strike-slip faulting with small displacements are also associated with the wrench faulting on the Fraser River Fault System (Monger, 1985).


Consolidated Spire Ventures Ltd.
Prospect Valley Property
Nicola Mining Division B.C.
REGIONAL GEOLOGY
Figure No. 7.1
February 2006
Legend
Ti Tertiary: intermediate composition intrusions
E Eocene: Princeton and Kamloops Groups Mafic and felsic volcanics; Clastic units
Kgd Kqm Cretaceous granodiorite & quartz monzonite
KSB KSBs Cretaceous: Spences Bridge Group; Volcanics, clastic sediments KSBs = Spius Creek Formation; Mafic volcanics
JKgd,g Jurassic-Cretaceous granite, granodiorite (Eagle Plutonic Complex)
JA Jurassic: Ashcroft Formation predominantly clastic sediments
TJqm Triassic-Jurassic: quartz monzonite
TJd,gd Triassic-Jurassic: diorite, granodiorite; including part of Mt Lytton Complex
TJm Layered quartzofeldspathic rock and related units of Mount Lytton Complex
TN Triassic: Nicola Group Predominantly mafic to felsic pyroclastics
Geological contact
Fault
Geology adapted and simplified from G.S.C. Maps 41-1989 & 42-1989
Major Highways
Selected secondary roads
Prospect Valley Property
Merritt
Lower Nicola
Lytton
Nicola River
Fraser River
Coldwater River
Spius Creek
Prospect Creek
Vancouver 220 km
Vancouver 200 km

8.2 Geological Mapping and Prospecting Program

No systematic geological mapping had been conducted prior to 2007 at the Prospect Valley Project.

8.21 Outcrop Mapping

Detailed geological mapping at the PV Project was conducted during the 2007 field season by Todd Johnson using the 2007 UTM NAD 83 topographic base maps provided by Eagle Mapping and described previously in Section 7.0, and a Garmin hand-held GPS (model no. 60CSx) for control. The accuracy for the northing and easting outcrop locations was generally within ± 4 to 5 meters. Doug Onychuk (a contractor for Consolidated Spire Ventures Ltd.) was Todd's field assistant and helped find outcrops and interpret rock types.

Detailed geological bedrock mapping, along with a separate overlay for alteration, was conducted in the following areas at a scale of 1:1000 during the 2007 field season: South Discovery Zone (July); North Discovery Zone (August); Northwest Dome Zone (September 8-11). Reconnaissance mapping at a scale of 1:5000 was also conducted by Todd and Doug at the following areas: (1) the NIC zone (drilled in 2006 by Spire); (2) the northwest corner of the PV claim block in a well-defined north-trending aerial magnetic low anomaly; (2) the north-central edge of the PV claim block adjacent to stream-sediment samples containing elevated Au values. The UTM coordinate locations for each of the mapping areas are listed in the Table below.

Table 8.1. Mapped areas of the Prospect Valley Project conducted in 2007.

Detailed Mapping Areas	**Easting Coordinates**	**Northing Coordinates**	**Map Scale**
South Discovery Zone	628370 to 629230	5552390 to 5553410	1:1000
North Discovery Zone	628775 to 629635	5553390 to 5554410	1:1000
Northwest Dome Zone	629000 to 629700	5554400 to 5554700	1:1000
Reconnaissance Mapping Areas			
NW PV claim Block corner	624700 to 625550	5556200 to 5557500	1:5000
North-central PV claims	627250 to 631500	5557200 to 5559000	1:5000
NIC	632500 to 633500	5555500 to 5556900	1:5000

Notes: (1) all coordinates are located using a horizontal datum of UTM NAD83 Zone 10
(2) Original rock, alteration, and outcrop type included in mapping for 1:1000 scale map areas
(3) Original rock only mapped for 1:5000 scale map areas (except for one quartz vein mapped at the NIC area)
(4) Only the south half of the magnetic low anomaly in the NW PV claim block corner was mapped/traversed
(5) The traverse for the North-central PV claim started on the south part of Mimenuh Mountain at UTM coordinate 627250E 5559000N, continued to the southeast, and ended at the main drainage located at 631500E 5558000N; original map sheets are in the project files

Todd constructed compilation geology and alteration maps (1:1000 scale) and cross-sections by hand throughout the South Discovery Zone and North Discovery Zone at 1:1000 scale which have been digitally compiled and attached in the Appendix. The cross-sections are generally oriented at 135º azimuth parallel to the 2006 diamond drill holes and subparallel to the property grid (and ground magnetic and I.P. geophysical survey lines) and listed in Table 8.2. The locations of the cross-sections are plotted on the geological compilation map overlay. All of the original hand-drawn topographic base maps, field geological maps, geological cross-sections, and geologic compilation maps are located in the Merritt field office.

The compilation maps include the following overlays: (1) outcrop geology map; (2) geological interpretation map; (3) alteration map; (4) Au mineralization map (from 2006 and 2007 drilling and 2005-2007 trenches). The geological cross-sections contain one overlay for the geology, quartz veins (in red), and the Au mineralization (variable colors along drill hole traces), and a separate overlay

Table 8.2. List of constructed geology cross sections.

Digital Cross-Section Name (name of hand drawn section)	Area	Azimuth (degrees)	Existing or Planned Drill Holes on Section (including Trenches)
(S1-S1')	SDZ	135	None; Trench 2007-05
1SE (A-A')	SDZ	135	DDH 2007-01; DDH 2007-02; Trench 2007-02
2SE (B-B')	SDZ	135	DDH 2006-21; DDH 2007-03; DDH 2007-06
4SE (C-C')	SDZ	135	DDH 2006-15; DDH 2006-16; DDH 2007-04; Site S-C2; Trench 2007-03
(D-D')	SDZ	135	Site S-D1
5SE (S18-S18')	SDZ	135	DDH 2006-18
(DD-DD')	SDZ	135	Site S-DD1
6SE (E-E')	SDZ	110	DDH 2006-19; Site S-E1
(F-F')	SDZ/NDZ	135	Site S-F1
2NE (NA-NA')	NDZ	135	DDH 2006-11; DDH 2006-12; DDH 2007-07
4NE (NC-NC')	NDZ	135	DDH 2006-07; DDH 2007-09; DDH 2007-10
5NE (NB-NB')	NDZ	135	DDH 2006-03; DDH 2006-04; DDH 2006-05; DDH 2007-06; DDH 2007-08
(NE-NE')	NDZ	135	Site N-E1
7NE (N20-N20')	NDZ	135	DDH 2006-20
(ND-ND')	NDZ/NWD	135	Site N-D1; Site NW-A1
NOTES: (1) Cross-sections are listed from south to north (2) Abbreviations: SDZ = South Discovery Zone; NDZ = North Discovery Zone; NWD = Northwest Dome Zone (3) Locations of cross-sections are shown in plan maps in Appendix (4) Digital cross-sections are shown n Appendix (without trenches); hand-drawn cross-section are in the project fles			

showing structural interpretations. All of the geological interpretations on the plan maps and the geological cross-sections are based on Todd's work. Svetlana Tikhomirova, a geological consultant that logged all of the 2007 diamond drill holes, completed an acceptable structural interpretation overlay for most of the drill cross-sections.

8.22 Trench Mapping

Trenches excavated in 2007 in the South and North Discovery Zones, and Northwest Dome Zone were also mapped by Todd and/or Victor Jaramillo on gridded mylar sheets at a scale of 1:500. The trenches were initially surveyed with the hand-held Garmin GPS unit mentioned above, and later surveyed by real-time kinematic GPS survey (described in Section 12.0). Multiple overlay sheets were used in the trench mapping that included: (1) original rock type; (2) alteration; and (3) rock-chip panel sample locations. All of the trench maps are located in the Merritt field office.

8.23 Reconnaissance Mapping

Todd and Doug spent four days (4 traverses) conducting regional geologic mapping at a scale of 1:5000 in the following areas: (1) the northwestern corner of the claim block in a strong magnetic low anomaly (Sept. 13, 2007); (2) in the north-central portions of the PV claim block as follow ups to stream-sediment Au sample anomalies located south and east of Mimenuh Mountain (Sept. 24 and 27, 2007); and (3) in the NIC area (Sept. 14, 2007). The helicopter was used for access for the first two areas whereas existing logging roads were used for access at NIC. The regional mapping was conducted on the same Eagle Mapping topographic base maps mentioned above at a scale of 1:5000. The regional geologic maps are also located in the Merritt field office.

8.24 2006 Diamond Drill Hole Relogging

Most of the 2006 diamond drill holes from the North and South Discovery Zones were re-examined using new rock type nomenclature learned from the 2007 surface geological mapping. The holes were logged by Todd Johnson usually on Sundays (when the rest of the field crew took the day off). In addition, Svetlana Tikhomirova relogged portions of the 2006 diamond drill holes in the North and South Discovery Zones in order to discriminate between early and late fault zone rocks. The notes from the hole relogs are in the project files.

Sampling of the 2006 diamond drill core (11 total samples) was completed by Todd Johnson and James Stewart, geological consultant, in order to collect rocks for thin-section analysis and whole-rock geochemistry. Vancouver Petrographics conducted the thin-section report analysis and is included in Appendix F. James Stewart conducted two separate field visits on June 10-14, 2007 and another on September 2-6, 2007. His recommendations were used to help target the 2007 drilling program.

Todd spent one day examining 2006 diamond drill core from the NIC area (Sept. 18, 2007).

8.25 Claim-Wide Prospecting

Prospecting and reconnaissance mapping throughout the central portion of the claim area was conducted by Ed Frey, geological consultant, in June, 2007. Ed conducted the point mapping with Doug using the 1:5000 scale topographic base maps and the Garmin hand-held GPS unit. A total of 18 rock-chip samples were taken by Ed during this time period. The rock-chip sample descriptions and the gold assay results for Ed's work are attached in the Appendix. A compilation map at 1:5000 scale showing Ed's mapping points and rock-chip sample locations are present in the Merritt field office.

8.3 Geology of the Prospect Valley Claim Area (modified from Jakubowski 2003, Balon 2004 and Moore 2004)

Detailed geologic mapping by Consolidated Spire Ventures in 2007 confirms that the mid-Cretaceous Spences Bridge Group is exposed throughout the majority of the Prospect Valley claim area. The majority of the Prospect Valley-NIC property is underlain by the Spius Creek Formation (KSBS; upper Spences Bridge Group) that is dominated by andesite and basalt flows with local flow breccia. The dominant rock types mapped throughout the Prospect Valley-NIC property with their associated abbreviations in parentheses include mafic-phyric basalt (Bp), aphyric basalt (B), mafic-phyric amygdaloidal basalt (amBp), and mafic-phyric andesite (ApF). In general, these mafic volcanic rocks are fined-grained, variable in color from dark brown, dark green, black, and maroon, and contain moderate amounts of amygdules. Mafic minerals dominated by olivine and pyroxene make up 3 to 10 percent of the basalt and andesite flow rocks (by volume) and are typically altered to hematite, hydrobiotite, and chlorite. Bright to dark green chert inclusions are locally abundant in basalt. The groundmass of the volcanic rocks varies from aphanitic to very fine grained (trachytic). The amygdules and breccia matrix material commonly consist of zeolite minerals, calcite, and opaque white to translucent light blue-grey and/or clear-banded chalcedony (agate).

The Spences Bridge Group (KSB; undivided lower division) forms a narrow NW-trending segment on the southern extent of the property. Typically, these volcanic rocks comprise a thick accumulation of subaerial intermediate to felsic volcaniclastics and porphyritic flows that show great variations in lithology and/or texture over very short distances. Intercalated with these volcanics are locally occurring minor amounts of waterlain tuffs, sandstones and tuffaceous conglomerates. The pyroclastic rocks form the most widespread sequence and consist of varicoloured (tan to rusty-orange, white, grey, brown, maroon, mauve, purple) lapilli tuffs, fine to coarse ash tuffs and explosion breccias/agglomerates. Fossilized non-marine plant stems, twigs and leaves are common in these rocks. The feldspar porphyry flows, which are exposed along a short segment of the Central Spur road

(PV 1 claim) are very fine-grained maroon to dark brown rocks containing up to 10 percent plagioclase by volume.

In the central and north-central regions of the claims, the Spences Bridge Group volcanics are occasionally masked by Eocene (?) mafic to felsic volcanics of the Princeton and Kamloops Groups. These undifferentiated volcanics consist of basalt, andesite, dacite and rhyolite flows, with minor tuffs and sediments. Several bodies of andesite porphyry intrusive rock with rare quartz eyes were mapped by Todd due south of Mimenuh Mountain and was previously identified by Monger and McMillan (1989) as part of the Eocene Kamloops Group. One other andesite porphyry body (sill?) of unknown affiliation outcrops in the east-central part of the South Discovery Zone.

A large sequence of weathered and unaltered amygdaloidal basalt intercalated with more resistant mafic-phyric basalt is exposed on a northeast-trending ridge line from UTM coordinate 631000 to 631365E to 5557910 to 5557600N. This sequence of rock units is similar to the hanging wall rocks present at the North and South Discovery Zone. The amygdules in the amygdaloidal basalt unit are filled with abundant zeolites at this location. No quartz veins were observed in the amygdaloidal basalt at this location.

The basal contact of the Spences Bridge Group (KSB) with older Triassic-Jurassic dioritic intrusions (TrJgd), is projected to straddle the southwestern PV property boundary but is covered by extensive overburden.

8.4 Geology of the South and North Discovery Zones

Outcrops in the South and North Discovery Zones are sparse in valley floors making up about 5 to 10 percent of the surface area, and are more abundant on ridge tops where they make up approximately 15 to 75 percent (average 30%) of the surface area. Much of the surface in the valley floors is covered by forest type vegetation and/or glacial till.

Geological surface mapping and 2006-2007 diamond drilling of the South and North Discovery Zones has identified at least 12 major map units within the Spences Bridge Group that are dominated by extrusive andesite to basalt flow rocks with lesser volcaniclastic and clastic rocks (Table 8.3). Detailed descriptions of the individual map units are listed in the geology core log legend included in the Appendix.

The rocks within the South and North Discovery Zones may be separated into four packages of rocks that are distinguished relative to their position with respect to a persistent southwest-striking fault zone called the Early Fault Zone (EFZ): (1) early fault zone/hydrothermal breccia; (2) footwall rocks; (3) hanging wall rocks; and (4) late dike rock that cuts both footwall and hanging wall rocks.

Table 8.3. List of map rock units in the South and North Discovery Zones.

Map Unit	**Map Abbreviation**	**Approximate Thickness (m)**	**Structural Relationship to EFZ**	**Comments**
Basalt	B	At least 20	HW	Mapped in the NW corner of the NDZ; massive
Feldspar-phyric andesitic basalt to basaltic andesite	ABp and BAp	6.0-15.0	HW	Mapped in the western and eastern edges of the SDZ; with weak to mod feldspar phenocrysts
Andesite porphyry (Late Dike)	Ap	2.0-17.0	FW and HW (cuts all rocks)	No outcrops; with plagioclase phenocrysts; chilled margins; moderately magnetic
Early Fault Zone - Hydrothermal Breccia	EFZ	0.6-12.0	EFZ rock separates FW from HW rock	No outcrops; clast-rich structural-hydrothermal breccia cemented by qtz+hem+py matrix
Amygdaloidal Basalt (mafic phyric)	amB and amBp	2.0-40.0	HW	Maroon, with fine to coarse amygdules; non-magnetic; intercalated with B or Bp; mapped in western part of SDZ and NDZ
Intraformational Breccia (flow)	I bxa	2.0-20.0	HW	Maroon, clast-rich; intercalated with amBp and Bp; Clast margins not sharp
Mafic-phyric to aphyric basalt	Bp or B	2.0-60.0	HW	Dk purple to dk gray; magnetic in NDZ; nonmagnetic in SDZ; intercalated with amBp/amB
Andesite porphyry flows	ApF	19.0-35.0	HW and FW (not interpreted as the same flow across the EFZ)	Lt to Dk grn gray; with plag phenocrysts; in hole DDH-2006-19 and mapped in eastern edge of SDZ (see note below)
Tuff Breccia	T bxa	36.0-58.0	FW	Mapped in the east half of the NDZ and SDZ; clast-rich <0.6 m diam; subangular>subrounded; moderately magnetic, chloritized; clast margins distinct
Basalt (some mafic phyric)	B, Bp	8.0 to 44.0	FW	Dark black to dark gray to dark green; moderately magnetic
Crystal tuff Lapilli tuff Tuff sandstone	CT LT TS	Up to 8.0 m thick	FW	Rare outcrops; typically intercalated with black argillite or includes small fragments of black argillite
Chert-Argillite	C-A	Up to 12.0 m thick	FW	Rare outcrops; Gray to mostly black, carbonaceous; typically intercalated with volcaniclastic rocks; chert is rare

Notes: (1) Rock units determined from 2007 geological mapping and relogging of 2006 diamond drill core.

(2) Volcanic rock names based on color and phenocryst content: dark gray to black rocks were called basalt whereas light to medium gray to green rocks with plagioclase phenocrysts were called andesite.

3) Volcanic rocks in the hanging wall of the Early Fault Zone (EFZ) are different from those volcanic and volcaniclastic rocks that occur in the footwall of the EFZ. Each rock type within the two distinct rock sequences may be intercalated with one another.

(4) Andesite porphyry mapped in the western edge of the South Discovery Zone (SDZ) near UTM coordinate 629020E 5552820N may be an intrusive sill that is not part of the Spences Bridge Group.

(5) Original field maps are stored in the project files.

(6) Abbreviations: FW = footwall; HW = hanging wall; EFZ = Early Fault Zone; NDZ = North Discovery Zone

8.41 Early Fault Zone (EFZ)/Hydrothermal Breccia

The Early Fault Zone/hydrothermal breccia unit forms a continuous southwest-striking body (fissure-structural vein zone) that extends for a minimum linear length of 1.7 km. This rock unit does not outcrop and has only been identified in the 2006 and 2007 diamond drill holes from DDH 2006-22 on the south to DDH 2006-20 to the north (see Table 8.4 for drill hole intercepts). The Early Fault Zone/hydrothermal breccia unit was noted in the 2006 diamond drill core and was subsequently identified with confidence after the completion of the first 4 2007 holes. The surface trace projection of the EFZ closely parallels a mapped drainage throughout the South Discovery Zone.

Table 8.4. List of Early Fault Zone/Hydrothermal Breccia intervals in 2006 and 2007 drill holes.

Drill Hole Number	**From (m)**	**To (m)**	**Drilled Thickness (m)**
DDH 2006-03	96.0	103.4	7.4
DDH 2006-04	97.8	99.4	1.6
DDH 2006-04	106.6	108.5	1.9
DDH 2006-05	14.7	105.1	90.4 (see Note 2)
DDH 2006-11	30.0	33.9	3.9
DDH 2006-12	38.8	39.9	1.1
DDH 2006-12	52.4	53.7	1.3
DDH 2006-15	77.1	86.3	9.2
DDH 2006-16	80.7	81.8	1.1
DDH 2006-16	82.6	84.1	5.5
DDH 2006-16	96.3	102.4	6.1
DDH 2006-18	50.1	57.8	7.7
DDH 2006-19	60.4	61.0	0.6
DDH 2006-19	77.7	83.5	5.8
DDH 2006-20	50.1	52.7	2.6
DDH 2006-21	71.8	72.8	1.0
DDH 2006-21	78.3	79.8	1.5
DDH 2006-22	84.3	86.6	2.3
DDH 2007-01	48.25	49.43	1.18
DDH 2007-01	52.24	64.66	12.42
DDH 2007-02	49.74	52.65	2.91
DDH 2007-02	59.67	67.06	7.39
DDH 2007-03	21.85	30.48	8.63
DDH 2007-04	22.12	23.69	1.57
DDH 2007-04	30.48	31.37	0.89
DDH 2007-05	96.18	98.59	2.41
DDH 2007-05	99.56	103.45	3.89
DDH 2007-06	68.70	71.68	2.98
DDH 2007-06	80.91	81.56	0.65
DDH 2007-07	90.21	93.68	3.47
DDH 2007-08	179.5	182.88	3.38
DDH 2007-08	185.00	190.42	5.42
DDH 2007-09	190.75	192.71	1.96
DDH 2007-10	147.98	151.00	3.02
DDH 2007-10	201.52	206.16	4.64
NOTES: (1) Bolded holes are from the South Discovery Zone; Holes that are not bolded are from the North Discovery Zone (2) Hole DDH 2006-05 drilled parallel to the dip of the Early Fault Zone and encountered a thick discontinuous zone of breccia. (3) Some intervals of Early Fault Zone/hydrothermal breccia have been slightly modified to correlate with assay intervals.			

The true width of the main Early Fault Zone body ranges from 1 to 12 m with moderate dips to the west ranging from 30 to 45º. The true thickness of the EFZ/hydrothermal breccias unit is greatest in the South Discovery Zone relative to the North Discovery Zone. Other strands of this fault zone occur along different orientations (with dips of up to 67º to the west) that are interpreted to join the main zone at depth.

The sense of movement along the Early Fault Zone is difficult to assess since no well-defined marker beds may be traced from the hanging wall to the footwall across the main fault zone. The Early Fault Zone however separates two distinctly different volcanic rock sequences with generally oxidized, nonmagnetic amygdaloidal-rich basalts and lesser andesite in the hanging wall (located in the western fault block), and moderately magnetic basalt and tuff breccia with some intercalations of argillite and volcaniclastic rocks (tuff and lapilli tuff) located in the footwall (located in the eastern fault block). Rocks that make up the Early Fault Zone have characteristics of fault breccia and hydrothermal breccia and are described below and in the Geology Core Log Legend attached in the Appendix.

The EFZ/hydrothermal breccia unit cuts multiple rock types within the Spences Bridge Group including mafic-phyric basalt, amygdaloidal basalt, intraformational breccia, tuff breccia, and argillite/chert. This unit is typically clast-rich and characterized by homogeneous angular to subangular volcanic clasts less than 12.5 cm in diameter (average 0.3 cm to 1 cm diameter). Moderate rotation of the clasts is typical in the core of the Early Fault (hydrothermal breccia) zone. Crackle breccia generally occurs at the margins of the EFZ and is more abundant in the hanging wall rocks. The breccia matrix makes up approximately 10 to 20 percent of the rock by volume and is made up of different assemblages of alteration minerals that are dependent upon elevation and location within the hydrothermal system. In the shallow portions of the hydrothermal system, the breccia matrix is dominated by quartz, hematite and pyrite whereas hematite, pyrite, calcite, chlorite, and/or zeolite are abundant in the deeper portions of the hydrothermal system. Hydrothermal breccia is almost always hard and competent and moderately cemented by the aforementioned matrix minerals and commonly has a reddish to pinkish color from the hematite mineralogy. Volcanic rock clasts within hydrothermal breccia are typically beige-colored (yellow cream) with strong pervasive hydrothermal alteration to k-spar, quartz, clay, sericite, and some pyrite with moderate textural destruction.

Narrow zones or veins less than 18 cm wide of EFZ/hydrothermal breccia are locally present throughout the North and South Discovery zones. These narrower zones occur either as: discrete planar walled veins; small fragmented relict pieces or clasts cut or deformed by later fault zones (LFZ), cut by later microcrystalline quartz veins, or partially consumed by late dike rock (Ap). Recognition of the Early Fault Zone/hydrothermal breccia unit in diamond drill core can be difficult since this unit occurred early in the formation of the hydrothermal system and is cut by subsequent stages of structures, hydrothermal alteration, and dikes. Discrimination between Early Fault Zone/hydrothermal breccia rock from intraformational breccias, tuff breccia, and lithic tuff is possible, but it takes a trained eye, especially when later structural events and hydrothermal alteration affect the rock.

8.42 Footwall Rocks

Rocks located in the footwall of the Early Fault Zone/hydrothermal breccia unit outcrop in the eastern fault block and consist mostly of dark green to black to brown tuff breccia (T bxa), basalt (B), and mafic-phyric basalt (Bp). In outcrop, the basaltic rocks dominate the immediate footwall south of 5552890N with tuff breccia occurring to the north. Local intercalations up to 12.0 m thick of lithic tuff (LT) and crystal tuff (CT) are exposed in the footwall basalts. Drilling in the footwall basaltic rocks have intercepted additional intercalations of black carbonaceous argillite (A), lapilli tuff (LT), tuff sandstone (Ts), vitric tuff (VT), black chert and argillite (C-A), argillite-sandstone (A-S), and rare coal seams and lenses interbedded with black argillite. Most of the contacts between these units are conformable. Some contacts between black argillite and basalt as observed in drill core are brecciated and may represent an unconformity surface. The volcanic flow units in the footwall are almost always highly magnetic (in sharp contrast to the non-magnetic to slightly magnetic hanging wall rocks to the west) and correlate well with the magnetic high response determined from the 2006 ground magnetometer survey.

Correlation of rock units within the footwall rocks from drill hole to drill hole, and from drill hole to surface exposures is difficult. Some black argillite horizons are associated with strong brecciation, fracturing, and fault clay gouge and exhibit variable thicknesses at variable depths in adjacent drill holes which suggests likely intervening fault zones. Other sequences of black argillite interbedded with volcaniclastic rocks or basalt in the South Discovery Zone are competent, flat-lying, and exhibit no fractures, little alteration, and no quartz veining (e.g. DDH 2006-21). Geological outcrop mapping in the footwall rocks in the southern part of the North Discovery Zone has identified an exposed basalt window with overlapping tuff breccia that suggests a gentle westerly regional dip (up to 6º) to the footwall rocks.

8.43 Hanging Wall Rocks

Volcanic rocks in the hanging wall of the Early Fault Zone are dominated by non-magnetic mafic-phyric amygdaloidal basalt (amBp) with lesser intercalations of non-magnetic aphyric basalt (B) in the South Discovery Zone, and with moderately magnetic mafic-phyric basalt (Bp) and intraformational breccia (Ibxa) in the North Discovery Zone. Intraformational breccia (I bxa) up to 20 m in true thickness is locally present within the hanging wall and to a lesser extent in the footwall flow rocks and is typically clast-rich and dominated by one volcanic rock unit. The contacts between the aforementioned hanging wall rock units are often conformable and gradational with varying sizes and amounts of amygdules near the flow bases and tops. This suggests that the different volcanic parent rock lithologies are inter-related and associated in space and time with each other with different cooling histories. The mafic-phyric basalt (Bp) unit dominates in the lower part of the hanging wall volcanic rock sequence (deeper than the 1500 m elevation level as seen in Geology Sections NB-NB' and NC-NC') as observed in diamond drill holes DDH 2007-08 and DDH 2007-10.

Only one flow contact (oriented at 55º strike and 20º southeast dip) was measured at the surface in volcanic rocks (at an outcrop in the Red Zone located on the western ridge top in the southwestern part of the North Discovery Map area) between intraformational breccia and amygdaloidal basalt. This eastern dip to the original volcanic flow rocks in the hanging wall of the EFZ appears to remain consistent in cross-section interpretations where the dips vary from 2 to 10º. Based on geological interpretations on cross-sections, the flow rocks from west to east across the early fault zone appear to form a broad syncline with the axial plane striking parallel to the main southwest-striking Early Fault Zone (described above). Correlation of the individual flow units (amBp, Bp, and I bxa) between drill holes is locally possible but difficult and may suggest that either the paleosurface at the time of volcanic rock deposition was irregular (hummocky), or that post depositional folding has affected the flow contact relationships.

8.44 Late Dike Rocks

Late dikes were emplaced after the formation of the Early Fault Zone. The dike rock typically intruded the footwall of the Early Fault Zone but also cuts the Early Fault Zone. The main dike rock has been encountered in drilling along the length of the mineralized system (over 1.6 km long). The main dike strikes northeast (214º based on projections from DDH 2006-11 and DDH 2006-13) and dips to the west from 28 to 42 degrees in the South Discovery Zone, and from 40 to 45 degrees in the North Discovery Zone. Narrow dikelets < 2 m wide occur adjacent to the main late dike zone. Other areas locally contain up to two late dikes that may be traced in drill holes.

Slight changes in composition, thickness, and color are observed in the dike rock along strike. Dike rock ranges in composition from light to dark gray andesite porphyry (Ap) to dark gray to black basalt (B) and rare diorite (Dp) and typically does not have amygdules. The dike thickness varies along the strike from 2 m true thickness in the South Discovery Zone (DDH-2007-05) to 17 m true thickness in the North Discovery Zone (DDH-2006-19). Sharp chilled margins are common within dike rock. The late dike rock has only been identified in drill core and in trenches (not in outcrop). The dike rock is typically fresh, hard, and competent, moderately magnetic, and dominated by phenocrysts of subhedral to euhedral plagioclase, with minor hornblende set in an aphanitic gray groundmass. Other late dikes such as those mapped in Trenches 2007-02, 2007-01 are magnetic, dark gray to black and consist of basalt with minor amygdules. Xenoliths up to 10 cm in diameter consisting of biotite granodiorite, quartz monzonite, and lesser black argillite are locally present within late dike rock from the North Discovery Zone. The late dike rock has been locally cut by late fault zones (LFZ).

The late dike rock is typically unaltered relative to the wallrocks that it intrudes. Minor veinlets of calcite are common. Pyrite and sericite are rare. Trace amounts of yellow garnet associated with calcite veinlets are present in basalt near the upper contact of the late dike in hole DDH 2007-10. The late dike rock intrudes and consumes the earlier-formed quartz veins, silica breccias, early fault zone/hydrothermal breccia (especially evident in holes DDH-2006-04, 2006-11 and 2006-12) which indicate that the late dike rock was emplaced after the mineralization event. Hole DDH 2006-04 has a relict 0.5 m wide massive quartz-rich vein zone surrounded by late dike rock. Gold is typically <4 ppb in late dike rock.

8.5 Local Structure

There are numerous structural lineaments discernible on the property, as interpreted from aerial photographs, topographic maps, geophysics, and limited field observations. Most commonly, these structures are defined by abrupt breaks-in-slope and/or topographic depressions and river drainages. The major river drainages (inferred structures) generally trend north and northeast, except Prospect Creek which trends southeast.

Detailed aerial photographic analysis of the original PV block has identified a number of linear features ranging from 500 to 2000 m in length. These features have a dominantly ESE-WNW or ENE-WSW trends, with multiple intersections in the Central Spur area (PV 1 claim). The 2002 trenching program in this area encountered some narrow easterly to southeasterly trending vertical fault zones and one north-south trending nearly vertical fault with associated manganiferous shears.

Four main fault systems have been identified in the North and South Discovery Zones: (1) the southwest-striking Early Fault Zone (described above in Section 8.41); (2) southwest striking high-angled faults; (3) northwest and east-trending transverse faults; and (4) late fault zones. The occurrence of the Early Fault Zone/hydrothermal breccia, late dike(s), and the late fault zone(s) within a small area spanning 25 to 40 m in true width indicates a long-lived structural/hydrothermal zone within the Spences Bridge Volcanic Belt.

8.51 High-Angled Faults

High-angled faults have been identified in the drilling and in the 2007 trenches and occur sporadically throughout the hanging wall volcanic rocks (located west of the Early Fault Zone). Faults identified in the eastern end of Trench 2007-03 consist of multiple planar zones of fault gouge with minor clay that range from 0.8 to 1.6 m in width. The fault planes are oriented 185 to 205º and dip 50 to 70º to the northwest. Numerous intact planar-walled quartz veins lie adjacent and parallel to the faults and indicate a close spatial relationship. The fault gouge is weakly argillized and bleached and rare gouge is associated with microcrystalline quartz fragments. The fault zone exposed in Trench 2007-03 is approximately 3.4 m wide and may be traced 50 m to the south in Trench 2007-04 where no bedrock is encountered.

Other high-angled faults occur at the eastern ends of the 2007 trenches where bedrock lies in sharp contact with glacial till. These interpreted faults exhibit variable southwest to northerly strikes and dip moderately to the northwest (80º) and east (50-62º), respectively.

8.52 Transverse Faults

Transverse faults cut the volcanic rocks in the South Discovery Zone with fault traces that are almost perpendicular to the main southwest strike of the Early Fault Zone and the mapped set of southwest striking quartz veins. Two of the northwest trending transverse faults (labeled as T1 and T2 on the geology map) are oriented at 300 to 315º and may be traced for at least 130 m in outcrop. These two transverse faults are spaced approximately 220 m apart from each other. The footwall volcanic rock units (e.g. tuff breccias and mafic phyric basalt) are cut by the T2 transverse fault in the South Discovery Zone and/or are bounded by the transverse fault.

The T2 transverse fault was mapped in the field whereas the T1 and T3 transverse faults were exposed in Trench #2007-05. The T1 and T3 transverse faults exposed in Trench #2007-05 strike at approximately 300 and 80 degrees, respectively, with steep dips and contain abundant quartz-vein fragments within the fault gouge that assays over 1 g/t Au.

No bedrock is exposed south of the T1 transverse fault identified in Trench #2007-05. This transverse faults appears to be associated with a strong southeast-trending magnetic low signature as indicated in the ground magnetic survey. Rare mapped quartz veins at the surface near the western end of Trench 2007-05 appear to strike subparallel to the northwestern projection of this fault. The significance and relative timing of the transverse faults in relationship to the other aforementioned geologic units and fault zones is poorly understood to date. The transverse faults do appear to confine the known gold mineralization in the South Discovery Zone.

8.53 Late Fault Zones (LFZ)

Late faults cut all of the volcanic rock units, argillite, and volcaniclastic units, the Early Fault Zone/hydrothermal breccia unit, microcrystalline quartz veins, and the late dike rocks and are referred to as Late Fault Zones (LFZ) in the 2007 geological drill logs. The late fault zones are concentrated in the footwall rocks (relative to the Early Fault Zone). Up to 4 separate splays of late faults have been identified on some cross-sections. Late faults range up to 6 to 11 m in maximum true thickness, are sinuous and appear to have a listric character in the footwall rocks. The late fault zones are characterized by fragmental fault gouge, a high degree of fracturing, slickensides on fractures, and moderate to high clay and/or chlorite content. A mylonitic shear fabric was observed in hole DDH 2006-05 (at 88.95 m) within a late fault zone. Horizontal and vertical senses of shear movement are indicated based on the variable orientations of slickensides on fractures in core. Earlier formed microcrystalline milky white quartz veins, calcite veins, and pyrite are typically affected by the late faults. In addition, veins of quartz + adularia in hole DDH-2006-16 in the hanging wall of the EFZ exhibit deformation (fractures and strain) textures that suggest the late faults postdate the quartz vein/Au event. Geological cross-section interpretations based on 2006 and 2007 drilling results suggest that the relative offset associated with the late fault zones is minimal to negligible. The late dike rock is not significantly offset laterally or vertically across the late fault zones.

9.0 QUARTZ VEINS, HYDROTHERMAL ALTERATION, AND GOLD MINERALIZATION

9.1 Spatial Distribution

Quartz veins, hydrothermal alteration and gold mineralization at the South and North Discovery Zones are concentrated in the hanging wall of the Early Fault Zone and are dominated by sheeted to stockwork microcrystalline quartz veins and veinlets and disseminated + vein pyrite over an area 2.0 km long by 140 to 230 m wide. This extensive area of quartz veins comprises the “target area” for favorable Au mineralization (see compilation geology and alteration maps). Multiple alteration assemblages are spatially associated with the quartz veins and include (from proximal to distal locations relative to the EFZ): pervasive silicification and silica breccia, sericitic/argillic, potassic, propylitic, hematite, and zeolite+calcite (Figure 9.1). In addition, the dominant vein mineralogy appears to be vertically zoned which may be correlated with the Au mineralization.

9.2 Silicification and Microcrystalline Quartz Veins and Veinlets

Microcrystalline quartz veins and veinlets are the dominant style of alteration at the Prospect Valley Project. The quartz-rich veins are most abundant in the immediate hanging wall of the Early Fault Zone within the “target area” described above and gradually decrease to the west and at depth. The zone of quartz veining and pyrite may be defined by mapping, trenching, ground and airborne magnetic surveys, ground IP surveys, and diamond drilling. The western edge of the target area corresponds to a minimum of 2 percent (by volume) quartz-rich veins mapped on the surface and generally >100 ppb Au encountered in drilling.

At least 6 styles of silicification and epithermal microcrystalline quartz veins have been identified in drill core and surface geologic mapping. The timing of the first and last stages of quartz alteration (Stage 1 and Stage 6) are known with confidence. The timing of the other quartz vein stages (Stages 2 through 5) are not known with certainty but likely occur between Stages 1 and 6.

The early **first stage** of silicification is related to the development of the Early Fault Zone/Hydrothermal breccia. Although no distinct veins are associated with this rock, the morphology of this zone is similar to a structural fissure vein that exhibits a continuous strike length over 1.7 km and dips moderately to the west. The Early Fault Zone is associated with: (1) clast-rich hydrothermal breccia exhibiting moderate clast rotation; and (2) crackle breccia that occurs laterally away from the main clast-rich hydrothermal breccia zone. Alteration associated with this early alteration stage is pervasive and dominated by a vertically zoned assemblage of silicification+hematite>pyrite at high elevations, and hematite > pyrite + calcite ± zeolite at lower elevations. The continuity of the Early Fault Zone suggests this feature to be a major structural-hydrothermal feature that developed in the early stages of the hydrothermal system.

The **second stage** of silicification is associated with crackle breccia and highly fractured rocks usually located at the margins or in the hanging wall of the Early Fault Zone. Quartz associated with Stage 2 is typically microcrystalline and light gray (smokey) in color and is associated with very fine grained to disseminated pyrite (and local marcasite?). No adularia has been observed with this stage. Quartz veins associated with this stage typically exhibit stockwork textures that are wavy to sinuous, and usually less than 2 cm wide. This stage is also associated with pervasive silicification with minor to moderate disseminated pyrite and minor microcrystalline quartz veins. Patches of relict maroon basalt and amygdaloidal basalt may occur throughout the pervasive silicification zones.

The **third stage** of silicification is associated with transparent to bluish gray microcrystalline quartz. Quartz veins associated with this stage exhibit local epithermal banding textures (crustiform > colloform) and may be associated with pyrite on the vein margins, and minor calcite and/or white to light pink microcrystalline adularia. These veins are typically wavy to sinuous in character and usually less than 6 cm in width. The wall rock to these veins is pervasively silicified with moderate amounts of disseminated to very fine grained pyrite. This stage of quartz vein has been observed to cut altered rocks within the Early Fault Zone. This stage is believed to occur at a similar time as Stage 2 quartz veins. The average vein content by volume for the second and third stages averages 2 to 10 percent.

A **fourth stage** of silicification is dominated almost entirely by white milky microcrystalline quartz with only trace pyrite and/or goethite. Quartz veins related to this stage are associated with planar to mostly wavy vein walls and typically occur in sheeted vein swarms. The planar-walled veins typically do not share parallel vein walls. These veins appear to pinch and swell along strike and may be traced for up to 20 m in surface outcrops, and projected up to a maximum of 130 m laterally between the 2007 trenches. Most of the veins mapped at the surface and in the 2007 trenches are believed to be related to this stage and reach a maximum vein width of 9.8 m (as mapped in the east end of Trench 2007-03). The mapped veins have an average width of 0.5-3 cm, strike southwest 190-225º (average 205º), and dip moderately to steeply to the west at 45 to 81º (average ~50-60º). The microcrystalline quartz-rich veins make up 2 to 20 percent of the rock by volume, locally exhibit sub-millimeter banding textures, and may be associated with rare open-space comb quartz. Bladed quartz (lattice) textures to the veins (interpreted to be quartz replacement of earlier formed calcite) with up to 6 cm wide crystals are locally present in the North Discovery Zone and have only been rarely identified in the South Discovery Zone. The wide veins encountered in the 2007 trenches in the South Discovery Zone were generally not intercepted in the nearby 2007 drill holes. The larger veins at the surface appear to become narrower with depth, and pinch out and flatten with depth (associated with high-angled listric faults?) where they are believed to join with or bottom in rocks associated with the Early Fault Zone.

Siliceous breccia is the **fifth stage** of silicification observed in the North and South Discovery Zones. Several types of Au-bearing siliceous breccia have been identified: (1) fault/hydrothermal breccias spatially related to the Early Fault Zone; (2) crackle breccias usually located on the hanging wall margin of the early fault zone; and (3) banded microcrystalline quartz-rich veins that locally brecciate the wall rock that they intrude. In the first style of siliceous breccias listed above, silicified volcanic rock clasts may be recemented by a subsequent stage of microcrystalline quartz, all of which may or may not contain cross-cutting microcrystalline quartz veins. These textures associated with siliceous breccia suggest greater than one generation of silicification. The microcrystalline quartz-rich matrix to the siliceous breccia may either be dark gray (associated with microscopic sulfides and/or sulphosalts) or milky white (devoid of sulfides and/or sulphosalts) in color. Pyrite makes up 0 to 10 percent by volume of silicified breccias rock and may or may not be associated with trace open-space quartz. Siliceous breccia typically occurs as pods located within or adjacent to the Early Fault Zone. The third style of siliceous breccia listed above locally occurs throughout the hanging wall of the Early Fault Zone and is associated with veins that brecciate and incorporate broken and rotated wallrock; in this case, there is usually only one generation of quartz associated with the main vein. This third style of siliceous breccia was mapped in the northern part of the South Discovery Zone at UTM coordinate 628847E 5553318N located in the immediate hanging wall of the Early Fault Zone.

A **sixth** and final **stage** of quartz vein is dominated by whispy veinlets to planar veins of milky white quartz ± sericite ± calcite that cut all of the previously identified quartz stages (1 through 5). This stage of quartz vein is associated with no to just trace amounts of pyrite and is believed to be barren of Au mineralization. These late veins are also believed to be associated in time with those narrow quartz veinlets (stringer veins and veinlets) mapped in the footwall of the Early Fault Zone and hosted in magnetic and chloritized basaltic flow rocks.

9.3 Hydrothermal Alteration

Hydrothermal alteration in the South and North Discovery Zones is focused along the Early Fault Zone and in the overlying hanging wall rocks and exhibits lateral and vertical zoning relationships (Fig. 9.1). Alteration is most intense in the immediate hanging wall rocks relative to the Early Fault Zone/hydrothermal breccia unit and generally decreases in intensity away from the contact. Microcrystalline quartz veins, siliceous breccias, and microcrystalline K-feldspar are typically more abundant adjacent to or within the Early Fault Zone, and decrease in abundance laterally away from the EFZ. Pervasive microcrystalline beige-colored K-feldspar generally occurs as either narrow alteration haloes to individual microcrystalline quartz veins or as intense wallrock flooding at lithological contacts (e.g. between amBp and Bp units) or adjacent to zones containing higher quartz vein densities. The pervasive microcrystalline K-feldspar alteration is usually associated with disseminated to very fine-grained pyrite that makes up to 7 percent of the rock by volume. The microcrystalline K-feldspar alteration typically floods the basalt groundmass and was most abundant at the surface in the North Discovery Zone north of 5554045N and south of 5554200N.

Argillic alteration was only mapped in Trench exposures in two areas: within the South Discovery Zone between 5552730N and 5552970N; and within the North Discovery Zone between 5553830N and 5554050N. The argillic alteration in these two areas is located 70 to 140 m west of the hanging wall contact of the Early Fault Zone and is spatially associated with sheeted to stockwork microcrystalline quartz veins in basalt and amygdaloidal basalt. Argillic alteration is associated with white clay, disseminated pyrite, and sheeted to stockwork microcrystalline quartz veins. The fault zone exposed at the east end of Trench 2007-03 also contains argillic alteration. Argillic alteration encountered in drill holes is weak and poddy in nature. Clay is also abundant within the Late Fault Zones where it commonly has a darker gray to dark green color where it is likely intergrown with chlorite. Some drill holes had to be stopped early due to difficult drilling conditions when they encountered black clay-rich fault gouge hosted in carbonaceous argillite (e.g. DDH 2007-04 and DDH 2007-09).

Propylitic alteration is pervasive in the footwall of the Early Fault Zone. The footwall rocks consisting of mafic-phyric basalt and tuff breccia units are strongly altered to chlorite. The chlorite occurs as both pervasive alteration to: the volcanic groundmass, to the mafic and felsic phenocrysts, and to the volcanic clasts. Veins and veinlets in the propylitic zone consist mostly of calcite + chlorite ± pyrite. Fractures are typically lined with chlorite and lesser calcite.

Deep veins encountered along the down-dip Early Fault Zone projection are dominated by white calcite with some chlorite + pyrite ± zeolite ± rare smokey quartz. These veins reach up to 12 cm in thickness and are usually located in the immediate hanging wall contact with the Early Fault Zone.

A zone peripheral to the Early Fault Zone in the hanging wall rocks consists of stockwork veins and veinlets of calcite + zeolite ± hematite ± rare microcrystalline quartz. These sinuous veins and veinlets cut amygdaloidal basalt and were mapped on the surface in the southwestern part of the North Discovery Zone (at the “Red Zone”). The veins at the Red Zone make up to 15 percent of the rock by volume.

Hematite-rich alteration occurs in the hanging wall rocks within and distal to the Early Fault Zone. Hematite dominates the matrix alteration to the Early Fault Zone rocks. In addition, hematite occurs as whispy veins and veinlets less than 1 cm wide that mostly occur in mafic-phyric basalt. Hematite-rich amygdaloidal basalt distal to the Early Fault Zone can locally be associated with fine silicification and disseminated pyrite with some calcite ± zeolite veinlets.

Amygdule mineral fillings are usually laterally zoned relative to the Early Fault Zone. Proximal to the Early Fault Zone, the amygdules are replaced by druzy quartz, pyrite, and locally iron-oxide (after pyrite). At moderate distances away from the Early Fault Zone, the amygdules are replaced by calcite with lesser quartz ± chlorite ± pyrite. At distal locations from the Early Fault Zone, amygdules are typically replaced by zeolite + calcite ± chlorite ± montmorillonite ± celadonite. The amygdules can be filled with more than one alteration mineral and may exhibit zoning from the core to the rim.

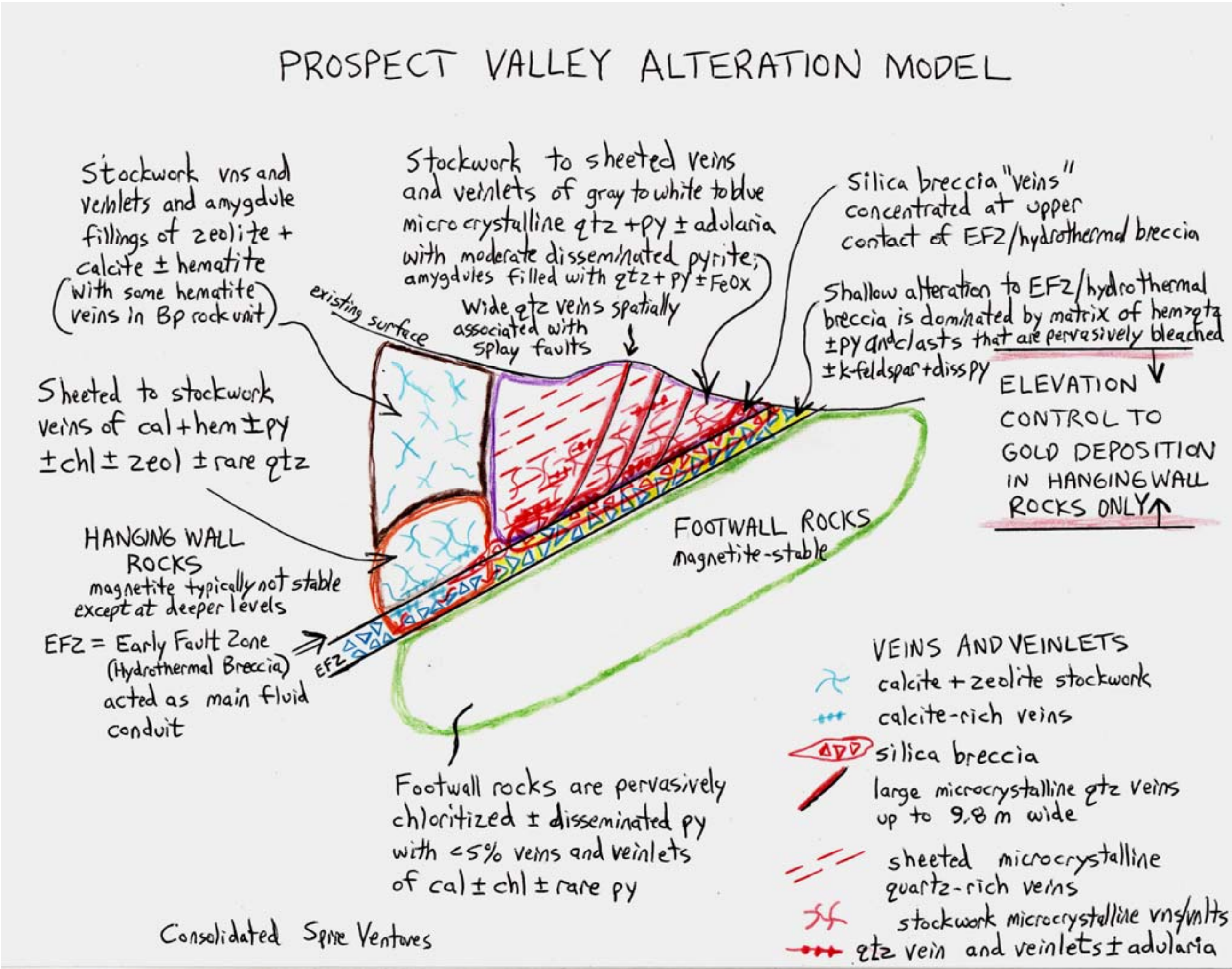


Figure 9.1 : Prospect Valley Alteration Model

9.4 Gold Mineralization

Fan drilling on several of the sections in the South and North Discovery Zones and relogging of 2006 drill holes has shown that the primary Au mineralization control is the Early Fault Zone/hydrothermal breccia unit (EFZ). The EFZ strikes to the southwest and dips at approximately 30 to 45º to the northwest. Elevated gold mineralization (>0.5 g/t) is restricted to the hanging wall rocks and within the EFZ in a slightly narrower zone than the silicified, sericitic/argillic and potassic hydrothermal alteration and ranges from 30 to 140 m in lateral extent and 3 to 55 m away from the Early Fault Zone. The dominant host rock for the Au mineralization is the mafic-phyric amygdaloidal basalt unit with lesser Au mineralization hosted in andesite flow rocks, mafic phyric basalt, aphyric basalt, and intercalated intraformational breccia and local tuff breccia belonging to the mid-Cretaceous Spence's Bridge Group. The epithermal mineral system appears to be a consistent zone characterized by weak to strong pervasive silicification, sheeted to stockwork microcrystalline quartz + py ± adularia veins/veinlets, and siliceous breccia with variable pervasive alteration consisting of mixed potassic, argillic/sericite, fine-grained pyrite, and hematization. Distinct fine dark-gray colored (arsenopyrite-bearing?) bands are locally present in the microcrystalline quartz veins where generally higher gold values are encountered. Microcrystalline quartz veins with associated gold values extend for several tens of metres above the main interpreted EFZ, with the strongest silicification and veining and the highest associated gold values generally located within 10 to 30 metres above the fault. A late stage post-mineral porphyritic andesite (late dike – Ap unit) has been emplaced within the main EFZ and can form a sharp lower boundary to the mineralized zone. The footwall rocks exhibit chlorite-rich alteration with calcite-rich veins and veinlets that are typically <5 ppb Au.

As of the end of November 2007, the epithermal/EFZ target in the South Discovery Zone has been drill tested down to a **maximum of 93 m below the surface** (DDH 2007-05) whereas the North Discovery Zone has been drill tested down to a **maximum of 210 m below the surface** (DDH 2007-08). At present the epithermal alteration/mineralized zone is open-ended towards the northeast beyond hole DDH 2006-20. Initial reconnaissance mapping has outlined the presence of quartz veins and iron oxides up to 135 m to the northeast beyond the quartz veins encountered in hole DDH 2006-20. The surface alteration and quartz vein system appears to be cut off to the south beyond UTM northing coordinate 5552645N based on 2007 Trench excavations (e.g. Trench 2007-South). Although no significant thicknesses of Au mineralization were intercepted in the southernmost drill hole on the project (DDH 2006-22), the Early Fault Zone has been identified in the drilling in this area.

The Au mineralization correlates strongly with the Stage 1, Stage 2, Stage 3, Stage 4, and Stage 5 quartz veins described above. A strong elevation control to the Au mineralization is seen on the hand-drawn cross-sections NA-NA’, NB-NB’, A-A’, and B-B’ based on the 2006 and 2007 drill results. The table below shows that the Au mineralization from both the South and North Discovery Zones is preferentially deposited over 24 to 66 m of vertical elevation difference. The upper preferred elevation for Au deposition locally intersects with the present day topographic surface (e.g. Section 1 SE in the South Discovery Zone) which suggests that the Au mineralization has been partially eroded away during the last glaciation event (s).

Table 9.1 List of elevation controls for Au deposition on selected hand-drawn cross-sections at the South and North Discovery Zones.

Cross-Section Name (old Hand Drawn Section Name)	**Zone**	**Elevation of Preferred Au Deposition (m) as seen on the hand drawn sections**	**Vertical Elevation Difference (m)**
A-A’	SDZ	1624 - 1663+	39 +
B-B’	SDZ	1578 - 1644	66
NA-NA’	NDZ	1556 - 1580	24
NB-NB’	NDZ	1474 - 1540	66
Notes: (1) The Au mineralization reaches the present day surface on section A-A’ (2) SDZ = South Discovery Zone; NDZ = North Discovery Zone			

10.0 GEOPHYSICS

10.1 Introduction

Over the period from May to June 2007, a geophysical study consisting of a helicopter (airborne) magnetic gradient survey totalling approximately 1,188-line kilometres was carried out by Aeroquest International, Ltd., Vancouver, BC. The magnetic gradient surveys were carried out on 148 east-west lines on 100 meter line spacings; and on 12 north-south lines on 100 meter line spacings for the entire Prospect Valley claim block.

10.2 Survey Results

Two maps were generated from the airborne magnetic gradient survey and are attached in the Appendix: (1) measured vertical gradient; and (2) total magnetic intensity.

The airborne magnetic gradient survey confirms the magnetic low anomalies and trends for the South and North Discovery Zones (25º azimuth) identified in the 2006 ground magnetometer survey. The South and North Discovery Zones lie within a northeast-trending linear zone of coincident magnetic low, resistivity high and anomalous soils geochemistry. These anomalous features are coincident with the presence of surface exposures of epithermal style quartz veining and stockworks with associated pervasive silicification. The quartz veining and silicification are the likely causes of both increased resistivity and low magnetic susceptibility effects developed throughout the South and North Discovery zones. The low magnetic effects are likely due to general magnetite destruction in the volcanic rocks due to increased silicification and generally increased levels of overall rock alteration.

The measured vertical gradient airborne magnetic survey results outline numerous other magnetic low lineaments that have the following orientations (in decreasing order of abundance): northwest (340-350º), northeast (25º, 35º, 60º), and north (0º) that may correspond with potential quartz vein-hosted gold targets.

The total magnetic intensity map from the airborne magnetic survey outlines the following priority magnetic low domains: (1) the MAG A target defined by a northeast trending zone defined by the UTM coordinates: 632000E 5553000N, and 633000 5555200N; (2) the MAG B target defined by a northeast trending zone defined by 631150E 5550900N, and 632100E 5552200N; (3) the SE MAG LOW target defined by the following UTM coordinate corners: NE corner of 629700E 5552320N; SE corner of 630370E 5550600N; SW corner of 629400E 5550400N; NW corner of 628800E 5552350N; the Northwest Dome Zone defined by a large magnetic low domain from 628150 to 629500E to 5554400 to 5555000N; and the Northeast Extension and Northeast Trend targets that lie in a larger northeast-trending domain from UTM coordinates 630150E 5554000N to 632000E 5559000N.
Reconnaissance visits to all of the various magnetic low anomalies are recommended for the 2008 field season.

11.0 TRENCHING

11.1 2007 Work

The following table lists the trenches that were excavated, mapped, and sampled during 2007. A total of 13 trenches were excavated by hand and small excavator and total approximately 645 m in linear length. The bulk of the trenches (Trench numbers 2007-01 to 2007-07) were excavated in the South Discovery Zone on 50 meter spacings. Two trenches made in 2005 were extended in the North Discovery Zone. Three new trenches were excavated in the Northwest Dome Zone.

Depths of the trenches varied from 0.4 to 2.1 m. The locations of the trenches were surveyed using the real-time kinematic equipment and are listed in the Appendix. Selected quartz veins, geological and alteration contacts, faults were also surveyed. The depths of the trenches were measured using a steel measuring tape.

Geological mapping of the trenches at a scale of 1:500 generally preceded the sampling of the trenches. The senior geologist selected the sample intervals based on geological units and/or hydrothermal alteration. Orange spray paint was used in the trench to separate the sample intervals which generally varied from 0.5 to 2.2 m in lateral width. Trench sampling was conducted by three people: two people in the trench collected the sample and were under constant supervision by a senior geologist (QP). Additional information on the trench sample collection procedures including the QA/QC issues are described in Sections 14.12 and 14.3.

Table 11.1 : List of trenches excavated in 2007 at the PV Project.

Trench No.	**Subarea**	**Linear Length of Trench (m)**
2007-01	South Discovery Zone	36
2007-02	South Discovery Zone	97
2007-03	South Discovery Zone	48
2007-04	South Discovery Zone	54
2007-04A	South Discovery Zone	7
2007-05	South Discovery Zone	58
2007-06	South Discovery Zone	35
2007-07	South Discovery Zone	33
2007- south	South Discovery Zone	23
2007-03 Extension	North Discovery Zone	87
2007-10 Extension	North Discovery Zone	58
2007-NWD-1	Northwest Dome Zone	60
2007-NWD-1A	Northwest Dome Zone	23
2007-NWD-2	Northwest Dome Zone	26
TOTAL	**13**	**645**
NOTES: (1) Trench 2007-04A is located 12.5 m SE of Trench 2007-04 on azimuth (2) Trench 2007-NWD-1A is located 46 m east of Trench 2007-NWD-1 on azimuth (3) Trench 2007-03 extension is an extension of Trench 2005-03 (deeper also) (4) Trench 2007-10 Extension is an extension of Trench 2005-10 (deeper also)		

11.2 Trenching Results: Geology and Hydrothermal Alteration

The 2007 trench excavations helped significantly in the interpretation and understanding of the geology, structure, alteration, quartz vein systems, and Au mineralization distribution which were described in the previous sections. The trench excavations were focused in the hanging wall rocks proximal to the projection of the Early Fault Zone. Although no rocks in the trenches were mapped as part of the Early Fault Zone, some faults were clearly identified in the trenches (e.g. Trench no. 2007-03). Only Trench #2007-10 Extension encountered both hanging wall rocks and footwall (late dike?) rocks.

The trench exposures confirmed that the main geological units exposed at the North and South Discovery Zones are amygdaloidal basalt, aphyric basalt, and phyric basalt. Abundant microcrystalline quartz-rich veins were exposed in the trenches and their widths, orientations, densities, and textural characteristics were mapped in detail. The veins exposed in the trenches typically have southwest strikes and dip moderately to steeply to the northwest. Although the vein walls to the larger veins greater than 6 cm wide have planar walls, the walls are commonly not exactly parallel with one another. Only one microcrystalline quartz vein has been interpreted to span over 130 m of strike length from Trench 2007-03 to Trench 2007-02 (including Trench 2007-04). The remaining veins were too narrow to trace from trench to trench with confidence.

11.3 Trench Results: Gold Mineralization

The following table lists the Au composite intervals and the overall widths of the mineralized zones from the 2007 trenches.

Trenches conducted in the North Discovery Zone verified the location of the Early Fault Zone but were not sampled. Trenches conducted in the Northwest Dome Zone discovered buried vein/alteration zones up to 8.9 m in width but were not sampled.

Trench No.	Sample Width (m)	Gold (g/t)	Silver (g/t)
2007-1	11.90	0.35	31.52
2007-2	32.50	0.82	5.69
2007-3	20.00	0.94	2.24
2007-4	35.30	0.82	3.13
2007-5	16.45	0.85	3.35
2007-6	8.00	0.45	1.48
2007-7	14.50	0.31	1.13

Table 11.2 List of Gold and Silver Composite Intervals for the 2007 Trenches

12.0 REAL-TIME KINEMATIC GPS SURVEY

Bob LaFreniere, consultant from Chilliwack, B.C. (phone number 604-798-5101) conducted a Real-Time-Kinematic (RTK) GPS survey for the South and North Discovery Zone areas on August 20-21, 2007. Mike Buchanan and Todd Johnson accompanied Bob on the survey to help carry the equipment and to help identify the survey locations. The GPS survey was conducted using the following equipment: a Trimble R8 GNSS/R65800 unit, and a 5800 Trimble R8 Model 2. The base station unit was placed in the Red Zone at the following coordinate: 628754.012E 5553681.923 1667.365 m elevation which is located approximately 952 m south of the Red Zone helicopter pad on the ridge top. A steel pin was set in the ground at the base station location. The tripod for the base station was left overnight during August 20. The accuracy level of the RTK survey is ± 1 cm for northing and easting locations, and ± 2 to 3 cm for elevation.

A total of 179 points were surveyed in the North and South Discovery areas. The survey data (northing, easting, elevation) along with point descriptions are included in the Appendix. Survey data were collected for the following objects: 2006 drill hole collars, 2005 and 2007 trench locations (trench boundaries) including geological and alteration contacts within the trenches, a few quartz vein outcrop locations, control points for the South and North Discovery Zone areas, Helicopter pad locations, various sample locations for the 2005 silt program (mostly along the baseline). Steel pins were set at control points and most of the Helipads and baseline points. Wooden stakes were placed at the ends (and midpoints) of the 2007 trenches, and at the surface projections of geological contacts, quartz veins, and faults on the northern or southern edges of the 2007 trenches. The wooden stakes were marked with the trench number and the survey point number in black permanent ink marker. The 2006 diamond drill hole collar locations were surveyed with confidence in the South Discovery Zone. The 2006 diamond drill hole collar locations were generally surveyed half way between the drill hole collar and the steel anchor left in the ground. The original drill hole collar is usually located 15 to 46 cm away from the anchor (on projected drill hole azimuth). Only some of the original 2006 drill hole collar locations were plugged with a piece of wood. Metal tags were placed around all of the 2006 diamond drill holes; however, a majority of the tags were destroyed within one month.

13.0 DIAMOND DRILLING

13.1 2007 Work

A diamond drill program consisting of 1,775.35 metres of NQ2 drilling in a total of 10 holes was completed using a helicopter transportable Zinex Mining Corporation Model A5 diamond drill (using a B20 drill head). The drill program focused on the South and North Discovery Zones over the period from October 4 to November 13, 2007. During the drill program, 10 holes were drilled covering approximately 1.3 kilometres of strike throughout the South and North Discovery Zones. The drill contractor was Full Force Diamond Drilling Limited of Peachland, BC. Drilling on the South and North Discovery Zones was carried out with helicopter services provided by Valley Helicopters of Merritt, BC.

The 2007 diamond drill program was carried out under the direction of senior geologists Victor Jaramillo, P.Geo., and Todd Johnson, P.Geo. Svetlana Tikhomirova, a consulting geologist, also helped supervise the drilling logistics. Drill core logging of the diamond drill program was carried out by Svetlana Tikhomirova. All drill sites were targeted on cross-sections and maps and located in the field by the senior geologists using a hand-held Garmin GPS instrument and Brunton compass.

Drill hole sites were cleared and employed wood-deck drill pads constructed by the Consolidated Spire Ventures crew. Twelve drill pads were constructed through the course of the drill program and an additional three pads were cleared, but not utilized.

Water from an existing pond (the main South Pond source located at UTM coordinate 5552620N 628080E) was initially used as the main water source for the drilling in the South Discovery Zone but only lasted for approximately the first two holes. The pump at that pond was later moved to an adjacent smaller pond located at approximately 5552665N 628040E which did not last more than two days. After the water was depleted from all of the upper water ponds, a pump was then placed in a stream by hole DDH 2006-21 and water was collected into 4 large water storage tanks that were also used for the drilling of holes DDH 2007-03, DDH 2007-04, and DDH 2007-05. The large water storage tanks each have a capacity to store 18,925 liters (4,165 imperial gallons) of water and were interconnected with one another to store up to a maximum of 75,700 liters of water (which was the quantity of water thought to be enough to last one drill shift). A northern water creek source with approximately 10 gallons per minute of flow had to be used to drill the remaining holes in the North Discovery Zone (DDH 2007-06 to DDH 2007-10). A large water pump and heating system was placed at UTM coordinate 629640E 5554860N and used as the primary water source for these last holes. Since the northern water source was located over 4000 m of lateral distance to the north of the 2007 drill holes with up to 700 m of elevation gain, a secondary water pump and heating coil unit was deployed near UTM coordinate 5554400N 629800E.

Down hole surveys were conducted by Full Force Drilling using a Reflex EZ-shot survey tool on most of the 2007 drill holes following the completion of the drilling. The results of the down hole surveys are in the Appendix. No down hole survey was completed for hole DDH 2007-09.

Core logging and sampling was conducted at the Spire Merritt field office facility. The procedure for core processing was to first open all of the box lids, mark the locations of the driller's block with a black permanent ink pen, and convert the driller's blocks from feet to meters. After the blocks had been converted to meters, the core was rigorously and realistically cleaned with water and a scrub brush. A senior geologist then examined the core for any mistakes related to the drill block conversions. A geotechnical log that included writing down the driller's blocks, and measuring rock quality designation (RQD) and total core recovery between the driller's blocks was completed by a senior geologist. RQD is the total length of solid pieces in the drill run that are greater than 100 millimeters (10 cm) in length (when drill-induced or handling fractures are pieced back together) and expressed as a percentage of the run length. Drilling induced and handling fractures are excluded or ignored. If the nature of a fracture was in doubt (natural vs. drilling induced), the fracture was assumed to be natural. Soil or completely weathered (fragmental) rock was marked as 0 RQD.

After the geotechnical information was collected, a summary of the geology including original rock lithology, alteration, and amount of quartz veins was noted on a separate sheet of paper by a senior geologist. The summary log was used to help select the sample intervals. Sample tags provided by Eco Tech Laboratories were filled out with the proper drill hole number and depth locations, marked with a red permanent ink pen on the edge of the sample tag (indicating the end of the sample interval), and stapled to the back edge of the proper core box. In addition, the core box and the core itself was also marked with a permanent ink pen. Each sample tag contained a unique identification number that was used to identify the location data of the sample. The sample identification number, hole number, and sample interval was also written on a separate piece of paper (the hole processing sheet). The hole processing sheet was useful in determining the systematic locations for the standards, blanks, and duplicate samples. After the sample intervals were selected and marked on the core boxes, photographs were taken of the core with a digital camera. Three boxes of core were typically included in each photograph with a typical box holding approximately 4.5 m of core. Identification tags were labelled with the start and ending depths for each drill box for each photograph. After the photographs were taken, the core was sampled with either a rock cutting saw where the core was competent, or a hand-mechanized core splitter where the core was soft or fragmental. The core was split or sawed into two near-equal samples with half of the sample collected into a sample bag for geochemical analysis, and the other half returned to the core box for reference and possible future use. Each core box was labelled with the drill hole number, depth interval in meters, and box number using a metal tag. The remaining drill core is currently stored at Spire's facility in Merritt.

13.2 Drill Hole Targeting Concepts

Drill hole locations were targeted using the following different concepts. All holes were targeted at an azimuth of 135º which lies close to the ~130º trend of the local grid used for the 2006 ground magnetic and IP surveys, and remained consistent with the bulk of the 2006 drill data. This azimuth direction for the drilling is oriented approximately perpendicular to the dominant southwest-striking quartz veins and the Early Fault Zone. The area of alteration, sheeted and stockwork quartz veins, and Au mineralization outlined in the 2007 trenches in the South Discovery Zone was the primary target for the 2007 drilling. The first 4 holes were drilled under the 2007 trenches in the South Discovery Zone. The secondary targets included drilling follow-up holes adjacent to those 2006 holes that encountered significant thicknesses and grades of Au mineralization. This secondary target involved targeting the down-dip western projection of the Early Fault Zone/hydrothermal breccia unit. The third target concept was to drill the western block of the target area defined by low quartz vein content on the surface and generally > 100 ppb Au in the limited diamond drill holes completed in 2006. The nature of the western mineralized target boundary was unknown in early 2007. The remaining holes DDH 2007-05 through DDH 2007-10 tested the aforementioned secondary and third target concepts. Many of the 2007 drill holes were able to test the second and third target concepts in the same hole with the third target concept being tested deep in the hole, and the second target concept being tested in the upper parts of the hole. The completion of drill fans along the same cross-section in the South and North Discovery Zones allowed a clearer understanding of the geological and mineralization controls.

Additional target concepts were planned for the 2007 drilling program but were not conducted due to severe November winter weather conditions that terminated the drilling early and included: (1) drilling to the northeast of previous 2006 drill holes (e.g. northeast of DDH 2006-20) along the projected strike extension of the Early Fault Zone to test hanging wall rocks; (2) "infill" drilling within the main mineralized target area (hanging wall rocks of the Early Fault Zone) at the South and North Discovery Zone on 100 to 150 meter spacings; and (3) initial drilling at the Northwest Dome Zone.

13.3 Drilling Results

Table 13.1 below lists the diamond drill hole data for the 2007 drilling program and includes the easting and northing UTM coordinates (UTM NAD 83 Zone 10), map elevation of the collar relative

Table 13.1 List of Diamond Drill Hole Data for the 2007 drilling program.

PROSPECT VALLEY PROJECT: South and North Discovery Zones 2007 Drill Hole Data								
Drill Hole	Northing	Easting	Azimuth	Dip	Map Elev (masl)	Depth (m)	Start Date	End Date
DDH 2007-01	5552809	628673	135	-42	1669	155.45	Oct 4	Oct 6
DDH 2007-02	5552809	628673	138	-81	1669	149.35	Oct 7	Oct 12
DDH 2007-03	5552836	628675	133	-58	1668	146.30	Oct 13	Oct 15
DDH 2007-04	5552913	628701	130	-42	1667	109.73	Oct 17	Oct 20
DDH 2007-05	5552904	628590	137	-57	1672	143.87	Oct 22	Oct 24
DDH 2007-06	5554042	629104	140	-81	1583	168.45	Oct 26	Oct 28
DDH 2007-07	5553753	629012	148	-72	1583	140.21	Oct 28	Oct 30
DDH 2007-08	5554109	629034	133	-80	1564	283.46	Nov 3	Nov 7
DDH 2007-09	5554034	628976	128	-44	1584	210.31	Nov 7	Nov 9
DDH 2007-10	5554034	628976	128	-80	1584	268.22	Nov 9	Nov 13
	TOTAL					**1775.35**		
Note: All 2007 drill holes still need to be surveyed for the collar coordinate information. Hand-held GPS coordinates for northing and easting, and base map elevation data are used in this table.								

to the 1:5000 topographic base map prepared by Eagle Mapping, azimuth at the collar, inclination at the collar, total depth of the hole, and the start and end dates for the hole. A plan map showing the locations of the 2006 and 2007 diamond drill holes are presented in the Appendix. Details of the 2007 drill program are presented in the Appendix (Drill Logs, Geotechnical Core Logs). Down hole survey results are presented in the Appendix.

Table 13.2 and the following paragraphs summarize the geology and mineralization zones intercepted in the 2007 drill program.

Holes **DDH 2007-01** and **DDH 2007-02** were drilled from the same drill pad in the South Discovery Zone and targeted the hanging wall basalts with Au-bearing stockwork and sheeted quartz veins and related alteration underlying Trench 2007-02. Drill hole DDH 2007-01 was drilled at 135º azimuth and at -42º inclination and encountered hanging wall amygdaloidal basalt with stockwork quartz veins and veinlets from 3.05 to 63.90 m, and footwall rocks (including argillite, lithic tuff, tuffaceous sandstone, and mafic-phyric basalt) and late dike rock from 63.90 to 155.45 m. Drill hole DDH 2007-02 was drilled at a similar azimuth of 138º at an inclination of -81º and encountered hanging wall amygdaloidal basalt from 5.90 to 72.72 m with abundant stockwork quartz + pyrite ± adularia veins from 5.90 to 53.15 m. Footwall rocks including phyric andesite, mafic-phyric basalt, argillite, lithic tuff, and tuffaceous sandstone were encountered from 72.72 to 149.35 m.

Drill hole **DDH 2007-03** was drilled 27 m due north of holes DDH 2007-01 and DDH 2007-02 at an azimuth of 133º and an inclination of -58º. This hole targeted altered and Au-bearing amygdaloidal basalt with abundant quartz veins and veinlets between Trenches 2007-02 and 2007-04. **Hole DDH 2007-03** intercepted hanging wall amygdaloidal basalt with abundant quartz veins and veinlets from 3.21 to 47.09 m and footwall rocks from 47.09 to 146.30 m consisting of lapilli tuff, lithic tuff, chert, argillite, andesitic basalt and mafic-phyric basalt.

Drill hole **DDH 2007-04** was drilled 82 m northeast of hole DDH 2007-03 at an azimuth of 130º and an inclination of -42º. This hole targeted altered and Au-bearing amygdaloidal basalt with abundant quartz veins and veinlets encountered in Trench 2007-03. **Hole DDH 2007-04** intercepted hanging wall amygdaloidal basalt and lesser lithic tuff and phyric andesitic basalt with abundant quartz veins and veinlets form 7.90 to 43.13 m with footwall rocks from 43.13 to 109.73 m consisting of phyric andesitic basalt, tuff breccia, phyric basalt, and argillite.

Drill hole **DDH 2007-05** was drilled 110 m east of DDH 2007-04 and 54 m northwest of DDH 2006-21 at an azimuth of 137º and an inclination of -57º. This hole targeted hanging wall amygdaloidal basalt with abundant quartz veins and Au mineralization intercepted in hole DDH 2007-21. Drill hole **DDH 2007-05** encountered hanging wall tuff breccia with lesser amygdaloidal basalt and mafic-phyric basalt from 9.75 to 104.41 m with weak to moderate quartz veins and veinlets from 86.77 to 104.41 m. Footwall rocks (tuff breccias, phyric-andesitic basalt, amygdaloidal basalt, argillite, tuffaceous sandstone, and chert) and late dike rock was encountered from 104.41 to 143.87 m.

Drill hole **DDH 2007-06** was drilled from the same drill pad location as Holes DDH 2006-03 and DDH 2006-04 in the North Discovery Zone at an azimuth of 140º and an inclination of -81º. This hole targeted the down dip mineralized quartz vein projection in the hanging wall of the Early Fault Zone encountered in holes DDH 2006-03, DDH 2006-04, and DDH 2006-05. Hole DDH 2007-06 encountered hanging wall rocks of amygdaloidal basalt, mafic-phyric basalt, tuff breccia, and intraformational breccia from 7.62 to 126.71 m with weak quartz veins from 27.04 to 113.53 m and moderate quartz veins and siliceous breccia from 113.53 to 126.71 m. An upper splay of the Early Fault Zone was intercepted in Hole DDH 2007-06 from 56.03 to 64.95 m and is spatially associated with weak quartz veins and disseminated pyrite. Late dike rock and footwall rocks consisting of tuff breccia, mafic-phyric basalt, and mafic-phyric andesite were encountered from 126.71 to 168.45 m.

Drill hole **DDH 2007-07** was drilled 305 m southwest of DDH 2007-07 from the same drill pad location as Holes DDH 2006-11 and DDH 2006-12 in the North Discovery Zone at an azimuth of 148º and an inclination of -72º. This hole targeted the down-dip mineralized quartz vein projection in the hanging wall of the Early Fault Zone encountered in Holes DDH 2006-11 and DDH 2006-12. Hole DDH 2007-07 encountered hanging wall rocks of amygdaloidal basalt, mafic-phyric basalt, and intraformational breccia from 10.60 to 93.68 m with weak quartz veins from 82.30 to 88.89 m and moderate siliceous breccia from 82.30 to 93.68 m. Late dike rock and footwall rocks consisting of tuff breccia, mafic-phyric basalt, amygdaloidal basalt, argillite, and tuffaceous sandstone were encountered from 93.68 to 140.21 m.

Drill hole **DDH 2007-08** was drilled 95 m northwest of DDH 2007-06 from the same drill pad location in the North Discovery Zone at an azimuth of 133º and an inclination of -80º. This hole targeted the down-dip quartz vein projections encountered in the hanging wall of the Early Fault Zone in holes DDH 2007-06, DDH 2006-03, DDH 2006-04, and DDH 2006-05.

Drill hole **DDH 2007-09** was drilled 127 m west of DDH 2007-06 in the North Discovery Zone at an azimuth of 128º and an inclination of -44º. This hole targeted the down-dip quartz vein projections encountered in the hanging wall of the Early Fault Zone in hole DDH 2006-07. Hole DDH 2007-09 encountered hanging wall rocks of amygdaloidal basalt, mafic-phyric basalt, and intraformational breccia from 10.25 to 192.71 m with weak quartz veins and disseminated pyrite from 107.16 to 124.45 m, and weak quartz-bearing veinlets and disseminated pyrite from 171.50 to 192.71 m. Late dike rock and footwall rocks consisting of intraformational breccia and argillite were encountered from 192.71 to 210.31 m.

Drill hole **DDH 2007-10** was drilled from the same pad as DDH 2007-09 in the North Discovery Zone at an azimuth of 128º and an inclination of -80º. This hole targeted the down-dip quartz vein projections encountered in the hanging wall of the EFZ in holes DDH 2007-09 and DDH 2006-07. Hole DDH 2007-10 encountered hanging wall rocks of amygdaloidal basalt, mafic-phyric basalt, and intraformational breccia from 7.92 to 206.16 m. Three separate splays of the EFZ were encountered in this hole. Weak veins consisting of calcite with rare quartz, hematite, zeolite, and chlorite with disseminated pyrite are present in the hanging wall rocks from 118.59 to 173.74 m. In addition, weak to moderate veins of calcite + zeolite + pyrite up to 18 cm wide were encountered from 189.15 to 206.16 m. Late dike rock and footwall rocks consisting of lithic tuff, lapilli tuff, intraformational breccias, and mafic-phyric basalt were encounterd from 206.16 to 268.23 m.

During the period of the 2007 drill program core samples were collected and submitted for laboratory analysis. Within this total are included 1 reconnaissance rock samples, and regularly inserted blank and standard check samples. In addition, duplicate core samples were also included in the sample stream which involved the collection of two ¼ core splits of the sampled interval. Half of the NQ core remains in the core box for future examination and work. Please see Section 14.0 that describes the geochemistry, sampling methodology, and QA/QC procedures for sampling and assaying.

DDH No.	FROM (m)	TO (m)	Width (m)	Au (g/t)	Ag (g/t)
DDH-2007-01	2.55	49.43	46.88	0.69	5.50
DDH-2007-01	51.74	63.90	12.16	0.63	2.17
DDH-2007-02	5.90	72.72	66.82	0.90	5.86
DDH-2007-03	4.08	49.69	45.61	0.94	5.86
DDH-2007-04	11.66	20.54	8.88	0.25	1.61
DDH-2007-04	24.45	40.46	16.01	0.54	1.22
DDH-2007-05	18.41	36.74	18.33	0.72	2.75
DDH-2007-05	47.96	60.31	12.35	1.12	3.17
DDH-2007-05	73.20	90.38	17.18	0.99	10.26
DDH-2007-05	99.56	106.27	6.71	3.62	11.06
DDH-2007-06	51.04	65.68	14.64	0.29	1.42
DDH-2007-06	69.21	83.19	13.98	0.35	1.82
DDH-2007-06	100.97	126.71	25.74	0.52	2.25
DDH-2007-07	88.12	93.68	5.56	0.84	0.46
DDH-2007-08	17.08	19.76	2.68	0.34	2.62
DDH-2007-08	34.98	51.82	16.84	0.51	2.49
DDH-2007-09	17.43	23.62	6.19	0.40	1.55
DDH-2007-09	45.72	51.39	5.67	0.30	1.39
DDH-2007-09	70.10	73.84	3.74	0.36	1.68
DDH-2007-09	101.84	124.45	22.61	0.51	1.42
DDH-2007-09	173.31	181.77	8.46	0.49	1.99
DDH-2007-10	83.53	87.58	4.05	0.29	1.12
DDH-2007-10	201.52	204.81	3.29	0.25	0.67

Table 13.2 Widths and weighted averages of 2007 drill intercepts

14.0 SAMPLING METHODOLOGY, QA/QC PROCEDURES, AND GEOCHEMISTRY

14.1 Sampling Methodology

The following summary describes the soil and rock sampling and analytical approach methods employed by Spire during the 2007 exploration program. All sampling was carried out under the supervision of Victor Jaramillo, manager of Spire Ventures. The Appendix contains sample certificates pertaining to the rock-chip samples, trench samples and the diamond drill core samples.

14.11 Property-Wide Rock-Chip Samples
All rock sample sites were marked with labelled sample tags and flagging tape. Sample locations were recorded with hand-held GPS units and thus given a UTM grid designation, using the NAD 83 datum. Reconnaissance samples had individual weights of 1 to 5 kilograms. Selected rock-chip samples were collected twice over the same interval and submitted in two different sample bags (inserted as duplicates). All rock samples were also shipped to Eco Tech's facilities in Kamloops, where they were assayed for Au. See below for details on analytical methods and standard and blank and duplicate insertions.

14.12 Trench Samples
Trench samples were collected by Consolidated Spire personnel under the supervision of a senior geologist (Victor Jaramillo or Todd Johnson). Two people were involved collecting the sample at the bottom the trench. After the trench was excavated and thoroughly cleaned with either brooms or leaf blowers, a senior geologist examined the geology and alteration of the exposed trench bedrock and marked the sample locations on the trench walls and floor with orange spray paint. The sample intervals ranged from 0.5 to 3.0 meters in linear length and were measured with a cloth tape or a steel measuring tape.

After the sample intervals were identified and marked, the middle of the trench floor covering 20 to 30 cm of width over the extent of the marked sample interval was broken up with axes, picks, shovels, and hammers. The broken rock material including all fines and larger pieces (usually less than 15 cm in diameter) was then placed in buckets and raised out of the trench and placed on a large plastic tarp. The total amount of rock material collected from the bottom of each trench sample was estimated to weigh approximately 30 to 50 kilograms (66 to 110 pounds). After all of the rock material was placed on the tarp, the two samplers took the edges of the tarp, raised the material in the air, and rigorously mixed or blended the rock. After thorough blending, the rock material was spread out evenly over the tarp in a circular or conical pattern. The sample was then separated into quarter splits by hand (and small broom for fines) and two of the quarter splits from opposite sides of the tarp were discarded. Following the discard of half of the sample, the remaining half of the rock sample material was blended again and separated into two equal splits. Only one of the splits usually averaging 6 to 8 kilograms (13 to 18 pounds) was collected in a large sample bag as the final representative sample from the trench location. This sampling methodology approximates a panel type sample. Standards, blanks, and duplicates were inserted into the sample stream at designated interval spacings listed in Section 14.3. Orange flagging was marked in black permanent ink with the sample identification number and tied around a representative rock from that specific trench sample location, and placed in the trench floor for future reference. The supervising senior geologist identified the rock type and alteration in the sampling book for future reference.

14.13 Diamond Drill Hole Samples

Sampling of the diamond drill core was completed primarily on similar geological units. Sample intervals were also separated based on similar styles of hydrothermal alteration, style and/or densities of microcrystalline quartz veins, pyrite abundance, and/or fracture or fault densities. Sample widths were commonly selected to range from a minimum of 0.5 m in mineralized zones to a maximum of 2.0 m in non-mineralized zones. The maximum sample width was 3.38 m from hole DDH 2007-02 and was a result of a core box that was dropped prior to sampling. Some intervals at the beginnings of the holes were associated with very low core recoveries and were sampled on wider intervals than the norm (e.g. 2.43 m in DDH 2007-03 from 3.21 to 5.74 m that was associated with 33% total core recovery). In zones with very low core recoveries, the sample intervals were commonly selected to correspond with the driller's blocks (representing the beginning or end of the drilled core run intervals). In this way, a recovery can be easily associated with a sample/assay interval.

14.2 Analytical Procedures

All core and trench samples were transported by Spire personnel, under constant supervision, in company trucks to Eco Tech Laboratory Ltd. of Kamloops, B.C. where they were then prepared for analysis. All core samples were dried and crushed to -10 mesh (70% passing) followed by ring pulverizing a 250-gram split to 150 mesh (95% passing). A 30-gram cut of the -150-mesh material from each sample was assayed for gold using lead-oxide flux collection fire assay fusions (with Ag as a secondary collector) with an atomic absorption (A.A.) finish. All core was analyzed for 28 elements using the aqua regia digestion Inductively-Coupled Plasma Atomic Emission Spectroscopy (ICP-AES) analysis (Eco Tech analysis code BICP-11) at the Eco Tech lab in Kamloops, B.C.

Metallic screen Au assays were completed on 7 samples from hole DDH 2006-22 with no good results. All sample pulps and rejects were temporarily stored by Eco Tech and eventually transported back to Spire's Merritt facility. Nine total samples were analyzed for specific gravity at the Eco Tech laboratory in Kamloops using the wax immersion method. All of the sample intervals, Au assays, geochemical values, geotechnical logs, down hole drill surveys, and drill logs have been entered into computer spreadsheets using Excel software. All core samples were under the care and control of Todd Johnson until they were transported to the laboratory. All trench samples were under the care and control of Victor Jaramillo until they were transported to the laboratory.

14.3 Quality Assurance/Quality Control (QA/QC) Procedures

Standards, blanks, and sample duplicates were inserted into the core sample intervals at the rate of one for every 21 samples. The sample duplicates involved first sawing or splitting the core sample in equal halves, and then quarter sawing or splitting the sample and taking two ¼ sized fractions of the sample interval for analysis. The vein occurrences in the core were examined prior to sawing or splitting and marked with a red crayon for proper orientation in the saw to obtain as near as even split as possible. Standards and blanks used for the 2007 drill program are listed in the table below.

Table 14.1. List of standards and blanks used for the 2007 diamond drill sampling program.

STANDARDS	**Au Grade**
SE 19 – Rocklabs pulp	0.583 ppm
SL15 – Rocklabs pulp	1.805 ppm
SL 20 – Rocklabs pulp	5.911 ppm
CDN-GS-P5B CDN Resource Laboratories pulp	0.44 g/t
CDN-GS-1P5A CDN Resource Laboratories pulp	1.37 g/t
CDN-GS-5C CDN Resource Laboratories pulp	4.74 g/t
CDN-GS-20 CDN Resource Laboratories pulp	20.60 g/t
BLANKS	
CDN-BL-3 CDN Resource Laboratories pulp	<0.01 g/t
Grey Granite Landscape Aggregate (rock chips)	<2 ppb
Note: Grey Granite blank material is from Imasco Minerals – Creston and Surrey B.C. pits – Imascominerals.com	

14.4 Geochemical Results: South and North Discovery Zones

All Au assays and some multi-element geochemical data (As, Ag, and Sb) related to the 2007 diamond drill core samples are listed on the geology logs and also presented on the original digital laboratory certificate in the Appendix. The table below lists some selected Au mineralization composites for the 2007 and 2006 drilling and their associated geochemistry. The table shows that Au mineralization ranges from 0.25 to 1.50 g/t over selected drill intervals that range from 3.9 to 52.6 m. The Ag:Au ratio varies from 0.5 to 12.0 and averages 4:1. Geochemistry associated with the selected Au mineralization in Table 14.2 includes anomalous Ag (average = 3.3 ppm), As (average = 288 ppm), and Sb (average = 10 ppm). The midpoint elevations of the geochemical/assay composite ranges from a low of 1488 m to a high of 1654 m. The range of elevation for the mineralized composites at the South Discovery Zone is 1569 to 1654 m. The range of elevation for the mineralized composites at the North Discovery Zone is 1488 to 1575 m which are generally lower compared to the South Discovery Zone.

Table 14.2 2007 and 2006 drill composites with geochemistry, Au thickness, Ag:Au, and midpoint elevation of composite intercept.

Drill Hole Number	From (m)	To (m)	Composite Thickness* (m)	Au (g/t)	Ag (ppm)	As (ppm)	Sb (ppm)	Au thk m*Au-g/t	Ag:Au	Mid pt. Min Elev(m)
2007 DRILL HOLE COMPOSITES										
DDH 2007-01	10.5	48.25	37.75	0.75	5.6	683	19	28.3	7.5	1644
DDH 2007-01	17.09	29.30	12.21	1.10	7.1	787	16	13.4	6.4	1654
DDH 2007-01	51.74	63.90	12.16	0.63	2.2	958	17	7.6	3.5	1630
DDH 2007-02	5.90	38.08	32.18	1.43	9.7	29	32	46.0	6.8	1647
DDH 2007-02	38.90	46.55	7.7	0.42	5.0	311	20	3.2	12.0	1628
DDH 2007-03	4.08	49.69	45.61	0.94	5.86	25	19	42.9	6.2	NC
DDH 2007-04	34.45	38.35	3.9	1.50	1.8	300	9	5.9	1.2	1642
DDH 2007-05	73.20	90.38	17.18	0.99	10.26	920	35	17.0	10.4	NC
DDH 2007-06	100.97	126.71	25.74	0.52	2.25	69	10	13.4	4.3	NC
DDH 2007-07	88.12	93.68	5.56	0.84	0.46	28	4	4.7	0.5	NC
DDH 2007-08	34.98	51.82	16.84	0.51	2.49	253	31	8.6	4.9	NC
DDH 2007-09	101.84	124.45	22.61	0.51	1.42	137	4	11.5	2.8	NC
DDH 2007-10	83.53	87.58	4.05	0.29	1.12	257	33	1.2	3.9	NC
2006 DRILL HOLE COMPOSITES										
DDH 2006-03	72.5	104.6	32.1	0.43	1.0	53	0.8	13.8	2.3	1521
DDH 2006-04	83.5	110.5	27.2	1.24	4.0	102	0.8	33.7	3.2	1499
DDH 2006-05	52.7	60.6	7.9	1.04	1.9	125	0.4	8.2	1.8	1530
DDH 2006-05	102.0	138.3	36.3	0.71	3.0	197	2.0	14.1	3.1	1488
DDH 2006-06	20.1	72.7	52.6	0.55	1.4	83	0.5	28.9	1.5	1517
DDH 2006-07	91.0	111.5	20.5	0.62	1.4	108	0.4	12.7	2.6	1523
DDH 2006-11	21.1	32.9	11.8	0.86	1.5	120	0.5	10.2	2.4	1575
DDH 2006-12	30.8	39.9	9.1	0.55	3.2	215	0.5	5.01	3.7	1561
DDH 2006-15	46.3	85.6	39.3	0.96	3.6	447	2.7	37.7	6.6	1615
DDH 2006-16	64.9	86.6	21.7	0.65	2.8	328	2.6	14.1	3.0	1596
DDH 2006-17	40.5	77.7	37.2	0.55	3.6	291	7.3	20.5	5.5	1623
DDH 2006-18	4.3	23.8	19.5	0.25	1.1	109	0.7	4.9	1.9	1638
DDH 2006-18	34.0	40.3	6.3	0.62	1.1	194	1.4	3.9	4.2	1616
DDH 2006-18	52.1	56.4	4.3	0.69	1.7	237	0.5	3.0	2.7	1600
DDH 2006-19	49.8	85.0	35.2	0.67	1.3	154	2.0	23.6	2.2	1569
DDH 2006-21	29.0	33.0	4.0	0.73	3.5	369	2.5	2.9	5.2	1641
DDH 2006-21	36.3	82.9	46.6	1.41	8.2	744	9.7	65.7	5.8	1616

NOTES: (1) Bolded holes are from the South Discovery Zone; Holes that are not bolded are from the North Discovery Zone
(2) Hole DDH 2006-05 drilled parallel to the dip of the Early Fault Zone and encountered a thick discontinuous zone of Breccia that was lumped together as EFZ rock.
(3) 2006 drill hole assays analyzed by ACME Laboratories (see Thomson, 2007)
(4) *Composite thickness is not necessarily true mineralized thickness
(5) NC = not compiled; Min = mineralized; Elev = elevation; thk = thickness

15.0 INTERPRETATION AND CONCLUSIONS

15.1 Summary

The epithermal Au (Ag) target at the South and North Discovery Zones formed the primary focus for Spire's 2007 mineral exploration program on the Prospect Valley property. The 2007 exploration program consisted primarily of geologic mapping (at 1:1000 scale) at the North and South Discovery Zones, limited reconnaissance mapping (at 1:5000 scale) in the northern edges of the claim block, trenching, a property-wide airborne magnetic gradient geophysical survey, and a diamond-drilling program. The 2007 exploration program formed a follow-up evaluation to extensive geochemical soil surveys, ground magnetic/induced polarization surveys, smaller hand-trenching, and diamond drilling programs carried out on the target zones in 2006. **The 2007 diamond drill program confirmed the presence of a gold-bearing low-sulfidation style epithermal mineral system hosted within a hanging wall sequence of amygdaloidal Spence's Bridge Group basalt, andesitic basalt and andesite.**

15.2 Geology

Geologic mapping and reinterpretation of the geology of the 2006 drill holes has better defined the stratigraphy and structure within the volcanic rock sequence. Major volcanic units have been mapped on the surface, identified at depth in the drill holes, and a stratigraphic framework has been completed (see the geology compilation map legend for individual rock units). Although on a regional scale the volcanic rocks of the Spence's Bridge Group make up a large volcanic pile that consist of intercalated sequences of variable but repetitive volcanic rock compositions, at a local scale a crude stratigraphic succession is observed. The major development in 2007 was the identification of a major structure called the Early Fault Zone (EFZ) unit that is a major control for Au mineralization at the South and North Discovery Zones. This unit is 1 to 12 m thick (true thickness), dips moderately to the southwest at 30 to 45º, and may be traced consistently in drill holes from the South to the North Discovery Zones for over 1.7 km in strike length. Local splays of the EFZ have been identified in drilling that have been interpreted to join the main EFZ at depth. The EFZ unit is interpreted as a fissure/structural vein that has characteristics similar to fault breccia and hydrothermal breccia. The EFZ/hydrothermal breccia unit cuts multiple rock types within the Spence's Bridge Group and separates two distinct volcanic rock sequences: a hanging wall sequence of intercalated amygdaloidal basalt, mafic-phyric basalt, intraformational flow breccia, andesite (flow rock), and lesser tuff breccia; and a footwall sequence dominated by mafic-phyric basalt and volcaniclastic rocks dominated by tuff breccia and lesser interbedded sequences of crystal tuff, lapilli tuff, tuffaceous sandstone, and black carbonaceous argillite. The hanging wall rocks are typically hematite-bearing (magnetite unstable) and more oxidized with more amygdules in comparison to the footwall rocks that typically have minor hematite, moderate amounts of magnetite in the volcanic rock groundmass, and lesser amygdules. Stratigraphic projection of flow and volcaniclastic units from the drilling and outcrop mapping indicate that the hanging wall rocks dip gently to moderately to the southeast whereas the footwall rocks are relatively flat with gentle dips (up to 6º) to the west.

Relative offset across the EFZ is difficult to assess since no distinct marker units (flow horizons) may be traced with confidence from the hanging wall to the footwall across the EFZ. Regional mapping of the Spences Bridge Group by Thorkelson and Rouse (1989) indicate that while pyroclastic and epiclastic rock units may occur in the Spius Formation, these units are more abundant in the Pimainus Formation. One interpretation of the geology at the North and South Discovery Zones is to associate the hanging wall rocks with the Spius Formation and the footwall rocks with the Pimainus Formation which would indicate the Early Fault Zone to be a low-angled normal fault (detachment fault). Other interpretations would be to associate all rocks with the Spius Formation with the formation of localized fault-bounded basins during volcanic rock deposition and localized development of basins and fluvial or lacustrine deposits between volcanic flow events. Flat lying, maroon, oxidized amygdaloidal basalt flow rocks have been observed to stratigraphically overly the mapped tuff breccia unit near UTM coordinate 630544E and 5554616N. Regional mapping outside of the South and North Discovery Zone map areas could help in determining the relative abundances of volcanic flow rocks versus volcaniclastic and epiclastic rocks that could help in interpreting the structural and stratigraphic framework within the Spences Bridge Group at the Prospect Valley project area.

Another development in the geological understanding of the South and North Discovery areas is the identification of the andesite porphyry (Ap) late dike unit to cut and post date all volcanic rock units, including the Early Fault Zone, and the microcrystalline quartz vein alteration and related mineralization. The late dike rock commonly intruded the previously formed Early Fault Zone at variable stratigraphic positions but was more commonly emplaced in the footwall of the EFZ. Late faults identified as late fault zones (LFZ) and characterized by fragmental clay-rich gouge with some slickensides cut all rock units, the Early Fault Zone, microcrystalline quartz veins and related Au mineralization. The concentration of the Early Fault Zone, microcrystalline quartz veins, the late dikes, and the late fault zones in the same structural domain suggest this structure to have been active over a long period of time.

15.3 Hydrothermal Alteration, Microcrystalline Quartz Veins, and Gold Mineralization

Hydrothermal alteration, microcrystalline quartz veins, and related Au mineralization in the North and South Discovery Zones are focused in the Early Fault Zone/hydrothermal breccia unit and the overlying rocks located in the hanging wall. The area containing microcrystalline quartz veins and related Au mineralization form a mapable/geochemical target zone 1.7 km long by 140 to 230 m wide with the EFZ forming a sharp "hard" eastern boundary and lower boundary to the target. Rocks within the target zone in the North and South Discovery Zones have the following general characteristics:

- 2 to 25 percent sheeted to stockwork microcrystalline quartz veins with average widths of 0.5-3 cm (range up to 9.8 m), strike southwest 190-225º (average 205º), and dip moderately to steeply to the west at 45 to 81º (average ~50-60º);
- generally associated with greater than 100 ppb Au in underlying bedrock as identified in drilling;
- outlined by multi-element anomalous soils geochemistry (including Au greater than 8 to less than 393 ppb) along greater than 3.0 kilometres of strike;
- hydrothermal alteration dominated by potassic (pervasive microcrystalline K-feldspar flooding) and sericitic/argillic assemblages with <5 percent disseminated pyrite is greatest in areas with high microcrystalline quartz vein densities which is typically proximal to the EFZ;
- the altered rocks of the hanging wall are typically non-magnetic and form prominent northeasterly-trending (32-37º) magnetic low anomalies on both the airborne gradient magnetic survey maps and on the ground magnetometer survey maps;
- the altered and weakly pyritized rocks may be correlated with a chargeability high anomaly (3-10 mV/V) based on ground IP surveys that may be traced semi-continuously at depth for 30 to 75 m (average 50 m);
- the quartz-bearing rocks may be partially correlated (not well defined) with low resistivity anomalies based on the ground IP results; and
- the western boundary of the epithermal target zone is believed to be gradational with less altered, less mineralized rocks, and less overall hydrothermal quartz and is not believed to be bounded by a fault.

Hydrothermal alteration is zoned laterally and vertically away from the Early Fault Zone. Microcrystalline quartz veins and related Au mineralization are associated with argillic/sericitic and potassic alteration, pervasive silicification, weak to moderate disseminated pyrite, and/or weak hematization that occurs in and proximal to the Early Fault Zone in the hanging wall rocks. The Au mineralization correlates strongly with up to five different documented styles of microcrystalline quartz veins. The quartz veins typically have a wavy character and form stockwork zones that approach crackle breccia textures (clast-rich and puzzle textures). An alteration assemblage dominated by hematite, zeolite, and calcite with rare chlorite and quartz occurs distal to the Early Fault Zone and at depth within the Early Fault Zone. Microcrystalline quartz-rich veins significantly decrease in size and density down-dip along the Early Fault Zone based on fan drilling on cross-sections mostly in the North Discovery Zone. The deeper veins are more restricted to the hanging wall contact with the EFZ and are dominated by calcite, chlorite, zeolite, hematite and lesser pyrite. Deep holes in the western block of the hanging wall in the South Discovery Zone still need to be drilled to determine the extent of microcrystalline quartz veins at depth.

Amygdules within basalt are typically replaced by different assemblages of hydrothermal alteration minerals relative to the proximity of the EFZ. Open-space quartz ± py ± iron oxide minerals replaced the amygdules adjacent to the EFZ whereas an assemblage dominated by calcite with lesser quartz ± py ± chl occurs distal to the aforementioned assemblage. Amygdules dominated by zeolite with lesser montmorillonite and calcite occur farthest away from the EFZ and were mapped on the surface west of the western target zone boundary (in the "Red Zone").

Footwall rocks underlying the Early Fault Zone are typically associated with propylitic alteration dominated by chlorite with lesser calcite and rare pyrite and quartz veinlets. The footwall rocks commonly retain their magnetic character, rarely have quartz veinlets, and are typically associated with very low Au values (<5 ppb).

Elevated gold mineralization (>0.5 g/t) is restricted to the hanging wall rocks in a slightly narrower zone than the silicified, sericitic/argillic and potassic hydrothermal alteration and ranges from 30 to 140 m in lateral extent and 3 to 55 m away from the Early Fault Zone. Although poddy or isolated narrow intervals of Au mineralization may occur throughout a large extent of the quartz-bearing vein/alteration zone in the hanging wall rocks, the thicker and higher continuous Au grades appear to have a strong elevation control which is likely related to the underlying boiling zone (see Figure 15.1 generalized epithermal model). The hydrothermal system at the Prospect Valley Project is best characterized as a low-sulfidation epithermal system and has similar distributions of alteration and mineralization as documented by Buchanan (1981).

15.4 2007 Trenching and Drilling Program

A total of 10 trenches (totalling 536 lineal meters) and 10 NQ2-sized diamond drill holes (totalling 1775.35 m) were completed in the North and South Discovery Zones during the 2007 field program. The 2007 trenching and diamond drill program targeted the hanging wall rocks of the Early Fault Zone. The drill program demonstrated strong geological and alteration continuity throughout the tested strike length; however, Au mineralization is more restricted as seen in holes DDH 2007-04 and DDH 2007-05.

All seven trenches and 5 diamond drill holes completed in the South Discovery Zone encountered Au mineralization over significant widths and grades, and were found to be associated with stockwork and sheeted microcrystalline veins within altered amygdaloidal basalt hanging wall rocks. The trenching identified the areas with hydrothermal alteration, microcrystalline quartz veins, and associated Au

GENERALIZED EPITHERMAL MODEL (from Buchanan, 1981)

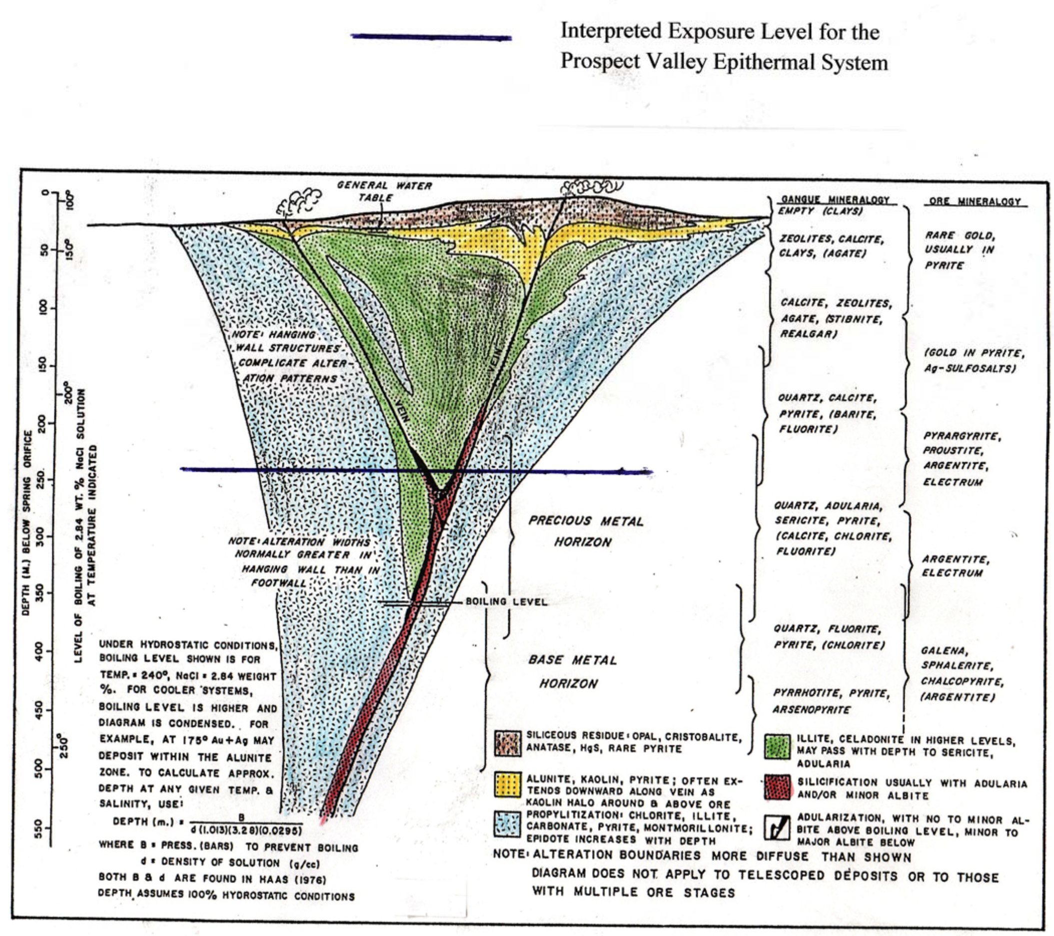


Figure 15.1 : Epithermal Model showing interpreted level for the Prospect Valley Mineralization

mineralization and helped target the drill holes that followed. The geology, hydrothermal alteration, and Au mineralization encountered in the drill holes generally corresponded well with that found in the surface trenches. The major differences observed between the 2007 trenches and the drilling were noted in Hole DDH 2007-04 which drilled under Trench 2007-03. One 3.0 meter-wide vein encountered in the western end of the trench that returned 0.14 g/t Au corresponded to a projected wider zone of stockwork quartz veins in the drill hole that assayed 3.9 m averaging 1.50 g/t Au. The 9.8 m wide quartz vein identified in the eastern edge of Trench 2007-03 was not encountered in Hole DDH 2007-04 and is likely the result of the vein bottoming out at the Early Fault Zone contact at depth.

Drill holes in the North Discovery Zone tested the down-dip potential of the quartz-vein system in the hanging wall rocks of the Early Fault Zone. Although the Early Fault Zone continues at depth, the Au-bearing quartz-rich veins encountered near the surface appear to change into calcite-rich veins at depth (greater than 170 to 250 meters below the surface along the down-dip fault projection) and appear to have lower grade Au mineralization (e.g. DDH 2007-10).

Trenches conducted in the North Discovery Zone verified the location of the Early Fault Zone but were not sampled. Three trenches totalling 109 linear meters were excavated by hand in the Northwest Dome Zone. The abundant quartz vein float mapped at the surface in the Northwest Dome helped target the locations of the trenches. One quartz vein zone 8.9 meters wide was identified in Trench NWD-2 but was not sampled.

To date, most of the 2006 and 2007-diamond drill programs have returned consistent, strongly anomalous to locally economic widths and grades of gold +/- silver mineralization. Hole DDH 2006-21 contained 45.7 m grading 1.57 g/t Au and hole DDH 2007-02 contained 66.82 m averaging 0.90 g/t Au and 5.86 g/t Ag. These results are of considerable significance, and demonstrate an excellent geological potential for a low grade bulk mineable target at the South Discovery Zone. The 2006 and 2007 diamond drill programs in the South Discovery Zone have only tested the epithermal/EFZ mineral system to 93 metres or less in depth from the existing surface, with further drilling required to greater depths and to the west, to locate additional gold/silver grades over mineable widths. The 2006 and 2007 diamond drill programs in the North Discovery Zone have tested the epithermal/EFZ system down to 210 m or less in depth below the existing surface and generally indicate that the shallow Au-bearing quartz-rich veins grade downwards into veins dominated by calcite with lower Au grades.

The midpoint elevations of selected Au assay composites from the South and North Discovery Zones ranges from a low of 1488 m to a high of 1654 m. The ranges of elevation for the selected mineralized composites at the South and North Discovery Zones are different at 1569 to 1654 m, and 1499 to 1561 m, respectively.

The mineralization and alteration characteristics encountered in the South and North Discovery Zones suggest that the epithermal quartz veins and stockworks intersected in the 2006 and 2007 diamond drill holes, are likely at a low level in the epithermal mineral system and located just above the boiling zone (see Figure 15.1). The minor presence of adularia and bladed quartz in the Au-bearing veins in the North Discovery Zone suggests the erosion level to be relatively deeper than that exposed in the South Discovery Zone.

16.0 RECOMMENDATIONS (2007)

Recommendations contained herein are for a comprehensive follow-up exploration program at the Prospect Valley Project including: airborne EM survey of the entire property; reconnaissance mapping and prospecting of magnetic low anomalies determined from the 2007 property-wide total field gradient magnetometer survey; mechanized trenching in areas of till cover and areas containing abundant quartz vein float; detailed geological mapping of the numerous targets identified in previous programs and during the 2007 reconnaissance program; and continued diamond drilling of the South Discovery Zone and North Discovery Zone immediately in the hanging wall rocks of the Early Fault Zone (on 100 m drill hole spacings), and outlying exploration target areas (if mapping and trenching activities are successful). All of the exploration areas are shown on Figure 5.0.

More specifically, the program should test the following areas of interest.

The first stage of exploration should consider an airborne EM survey of the entire Prospect Valley property. The EM survey would be useful in defining major structures and possible conductive mineral zones and would complement the property-wide airborne magnetometer survey data obtained in 2007.

Early exploration should first focus on 1:1000 scale geological mapping of the **Northeast Extension Zone and the Northeast Trend Zone**. Mapping these areas using the map units defined in the 2007 mapping program, will help in the targeting of trenches across the projection of the Early Fault Zone. Mapping in these areas and subsequent trenching should be completed as soon as logistically possible in order to bring these targets to the drilling stage later in the summer.

Trench 2007 NWD-2 in the **Northwest Dome Zone** needs to be sampled early in the 2008 field program. Additional hand trenches to the north of Trench 2007-NWD-2 at 50 m spacings are warranted. Trench 2007-NWD-2 should be extended to the east to determine the extent of the vein system in this area. Depending on the success of the trenching in the Northwest Dome Zone, drill holes may be targeted accordingly. The collar location for DDH NW-A1 is flagged in the field and targeted to intercept the vein exposed in Trench 2007-NWD-2. A riskier target that should be considered is to extend the hole at site 2007-NWD-2 to intersect the EFZ at depth.

The **North and South Discovery Zones** are the property's priority exploration targets. Early drill holes should focus on the South Discovery Zone where large thicknesses of continuous Au grades have been previously identified. The drilling should target the area surrounding holes DDH 2006-21 and DDH 2007-01 and DDH 2007-02 and include drilling to the south towards the projection of the T-1 transverse fault. Site S-C2 is located northwest of DDH-2006-15 and DDH 2006-16 and already has a drill pad constructed for drilling. A couple holes should specifically target the T1 transverse fault in the southern part of the South Discovery Zone. One of the holes should be collared in silicified hanging wall rocks near the eastern end of Trench 2007-02 and drilled to the southwest at 210º azimuth under the swamp. Depending on the success of the first transverse fault test, a second drill hole test could be collared south of Trench 2007-5 (on the west end) and directed to the NW towards the mineralized Au intercept in hole DDH 2007-02. Drilling of the T1 transverse fault will be necessary in order to get a better understanding of the mineralization controls (if any).

A parallel drilling program should also focus on drilling the hanging wall rocks of the Early Fault Zone throughout the **South and North Discovery Zones** on 100-meter drill spacings. This drilling should target the EFZ up to a maximum of 130 m below the surface (as seen in cross-section NB-NB'). Drill site S-D1 should be moved farther to the west to intercept the EFZ at a higher elevation. Site S-DD1 is a good collar location for drill testing of the EFZ. Site S-E1 is a good collar location but the dip of the hole should be at -60º. Site S-F1 is a good collar location but should be drilled at -45º. Site N-D1 tests the northern extension of the North Discovery Zone and has a drill pad constructed for drilling. Other holes should be added within this area to test the EFZ target on 100-meter lateral spacings. These remaining holes need to be targeted by incorporating the 2006 ground magnetometer/IP survey results, the 2007 geological mapping and cross-sections, and the 2006 soil geochemistry. It is recommended to initially drill shallow-angled holes from these drill sites (-45 to -55º) and, depending on the success of the first hole, a second hole from the same drill site should be drilled at a steeper inclination (-65 to -80º) in order to test a larger vertical zone in the hanging wall of the EFZ based on the distinct elevation control to the Au deposition observed in the other areas.

A parallel exploration program should focus on systematic reconnaissance visits by a geologist/prospector to the numerous airborne magnetic low anomaly zones (and associated EM anomalies) adjacent, but peripheral to the South and North Discovery Zones. Magnetometer and IP survey results from previous exploration programs at the PV property have proven to be useful tools for outlining areas of near-surface epithermal quartz veins and related alteration systems. The following magnetic low anomalies are priorities for early reconnaissance/prospecting visits in 2008: the **Southeast Magnetic Low, MAG A, MAG B targets, and the Northwest Dome Mag Low**. The reconnaissance/prospecting visits will be very important to conduct early in the season after the snow has melted in order to prioritize targets and initiate the next stages of exploration that could include: detailed geologic mapping and surface rock-chip sampling, additional close-spaced geochemical and/or geophysical surveys, and trenching. The Southeast Magnetic Low target should be a higher priority target based on the favourable 2006 silt results. Initial geological mapping in the Northwest Dome Mag low indicates that a substantial amount of the surface is covered by vegetation or till so it is recommended to excavate some trenches in different slope areas to determine depth to bedrock.

Follow-up reconnaissance geological mapping is recommended for the **Ridgeline** and **Crown** targets that were identified in the 2007. The Ridgeline fault/vein target needs to be followed to the north-northwest to determine the extent of the target. In addition, rock-chip sampling needs to be conducted at Ridgeline. The Crown target needs to be mapped and targeted for trenching since the bulk of this target appears to be covered by till and float.

Other secondary exploration targets worthy of continued exploration include the **NIC, Bonanza Valley** (formerly called the PV Zone), and the **stream-sediment sample anomalies** (up to 255 ppb Au) that lie in the north-central and northwestern edges of the claim block. Initial reconnaissance mapping in the northern areas of the claim block have identified Spence’s Bridge Group rocks and Kamloops rocks with only rare quartz veinlets in the former unit at the surface. As most of these target areas remain at a ‘grassroots’ level of exploration, additional work including prospecting, mapping at 1:5000 scale, and rock-chip sampling are recommended. Initial 2007 mapping at the NIC Zone in 2007 focused on the areas north, south and west of the 2006 drill holes. Future mapping at the NIC Zone needs to focus on the area to the east of the 2006 drill holes.

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18.0 AUTHORS CERTIFICATES, SIGNATURES AND CONSENTS

TODD W. JOHNSON, P. GEO
STATEMENT OF QUALIFICATIONS

I, Todd W. Johnson, P. Geo., HEREBY CERTIFY THAT:

1) I am an independent consulting geologist with a business address at 550 N. McCarran Blvd. #254 Sparks, Nevada 89431

2) I am a graduate of Washington State University of Pullman, Washington (USA), with a B.Sc. in Geology (1988) and M.Sc. in Geology (1991); and of University of Nevada-Reno with a M.Sc. in Geological Engineering (2003).

3) I am a registered Professional Geologist in good standing with the Australian Institute of Mining and Metallurgy (AusIMM) with member number 227374. I am also a registered Professional Geological Engineer in good standing with the State of Nevada (USA) Board of Professional Engineers and Land Surveyors with license number 016748.

4) I have worked as a geologist for a total of 17 years since my 1991 graduation from university.

5) I am an active member of the following professional societies: Society of Economic Geologists (SEG), Assoc. of Engineering Geologists, the Geological Society of Nevada, American Society of Civil Engineers, and the Australian Institute of Mining and Metallurgy.

6) I am jointly responsible with Victor Jaramillo, for the preparation of all sections of the technical report titled "2007 Geophysical, Geochemical and Diamond Drilling Report: Prospect Valley Project, South British Columbia, Canada" prepared for Consolidated Spire Ventures Ltd. dated April 7, 2008 (the "Technical Report").

7) I conducted most of the geological mapping, geological cross-sections, drill hole targeting, at the Prospect Valley Project in 2007 and was active at the project site from July 3 to December 4, 2007. In addition, I supervised and helped in the diamond drill core logging and sampling, and followed standard Quality Assurance/Quality Control procedures practiced by the exploration industry and outlined in the Technical Report.

8) I was paid a daily rate for geological consulting services performed at the Prospect Valley Project and do not have any other interests relating to the project or Consolidated Spire Ventures, Ltd. I do not have any interest in adjoining properties in the Spences Bridge area.

9) I have not had prior involvement with the property that is the subject of the Technical Report.

10) I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

____

Todd W. Johnson, M.Sc. P. Geo.
Dated in Sparks, Nevada
April 7, 2008

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STATEMENT OF QUALIFICATIONS

I, Victor Jaramillo, P.Geol. do hereby certify that:

I am a President of:

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Vancouver, B.C. Canada,
V6G 1E7

I graduated with a Bachelor of Science Degree in Geology from Washington and Lee University in 1981. In addition, I have obtained a Master of Science Applied Degree in Mineral Exploration in 1983 from McGill University.

I am a professional geoscientist, registered with the Association of Professional Engineers and Geoscientists of British Columbia (License No. 19131). A Fellow of the Geological Association of Canada (GAC), a Fellow of the Society of Economic Geologists (SEG), a member of the Geological Society of Nevada and a member of the Geological Society of America.

I have worked as a geologist for a total of 27 years since my graduation from university.

As co-author I am jointly responsible with Todd W. Johnson, for the preparation of all sections of the technical report titled "2007 Geophysical, Geochemical and Diamond Drilling Report: Prospect Valley Project, South British Columbia, Canada" prepared for Consolidated Spire Ventures Ltd. dated April 7, 2008 (the "Technical Report").

I have not had prior involvement with the property that is the subject of the Technical Report.

I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

I am not independent of the issuer and currently hold 180,000 shares of Consolidated Spire Ventures. I do not have any interest in adjoining properties in the Spences Bridge area.

I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 7th day of April, 2008

"Victor Jaramillo"

Victor Jaramillo, P.Geo.

Appendix A: List of Prospect Valley Claims (NTS Map 093I/03E)

The following claim information is not a legal title opinion but is a compilation of active claims data, based on the author's review of the Government of British Columbia mineral rights inquiry website. The Prospect Valley property is dominantly located in Nicola Mining Division of south-central British Columbia, Canada. A few claims, on the northwest corner of the property, are in the Kamloops Mining Division. **Note:** The Government of British Columbia converted its' mineral titles system to a fully digital and online system in January 2005. As a result, the current claim data are different from those noted in the 2004 assessment report.

Tenure number	Claim Name	Size hectares	Claim Type	Issue Date	Good to Date	Primary BC Map #
403445	PV 11	25.000	MC2	June 21, 2003	April 27, 2013	092I004
410537	Shak 1	450.000	MC4	May 15, 2004	April 27, 2010	092I014
410538	Shak 2	450.000	MC4	May 15, 2004	April 27, 2010	092I014
410539	Shak 3	500.000	MC4	May 18, 2004	April 27, 2010	092I014
410540	Shak 4	250.000	MC4	May 18, 2004	April 27, 2010	092I014
410556	NU 7	500.000	MC4	May 16, 2004	April 27, 2010	092I015
410557	NU 8	500.000	MC4	May 16, 2004	April 27, 2010	092I014, 015
410558	NU 9	500.000	MC4	May 16, 2004	April 27, 2010	092I015
410559	NU 10	500.000	MC4	May 16, 2004	April 27, 2010	092I014, 015
506056	PVE 1	352.020	MCX	Feb. 07, 2005	April 27, 2010	092I
506060	PVE 2	517.949	MCX	Feb. 07, 2005	April 27, 2010	092I
506062	PVE 3	331.586	MCX	Feb. 07, 2005	April 27, 2010	092I
506065	PVE 4	325.451	MCX	Feb. 07, 2005	April 27, 2010	092I
516440	**"A"**	1,285.599	MCX	July 8, 2005	April 27, 2014	092I
516457	**"B"**	414.629	MCX	July 8, 2005	April 27, 2013	092I
516470	**"C"**	207.300	MCX	July 8, 2005	April 27, 2013	092I
516550	**"D"**	1,760.222	MCX	July 10, 2005	April 27, 2010	092I
516552	**"E"**	973.869	MCX	July 10, 2005	April 27, 2010	092I
516673	**"F"**	994.535	MCX	July 11, 2005	April 27, 2010	092I
516813	PVE 5	41.394	MCX	July 11, 2005	April 27, 2009	092I
517426	PVE 6	20.697	MCX	July 12, 2005	April 27, 2010	092I
	Total	10,900.251				

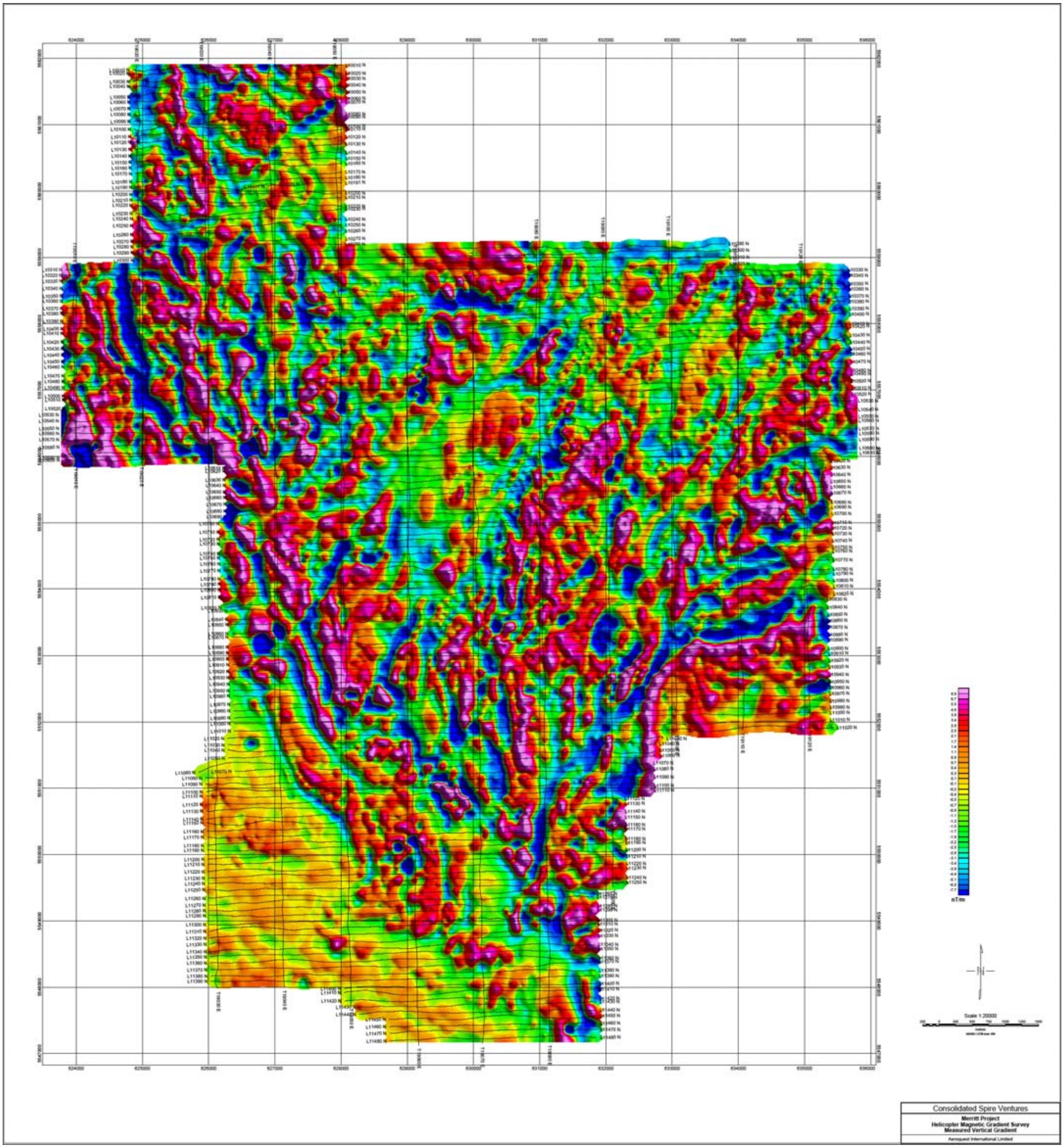
After: British Columbia Mineral Titles website: (http://www.mtonline.gov.bc.ca)

MCX: Mineral cell title submission
MC2: 2-post claim
MC4: 4-post claim

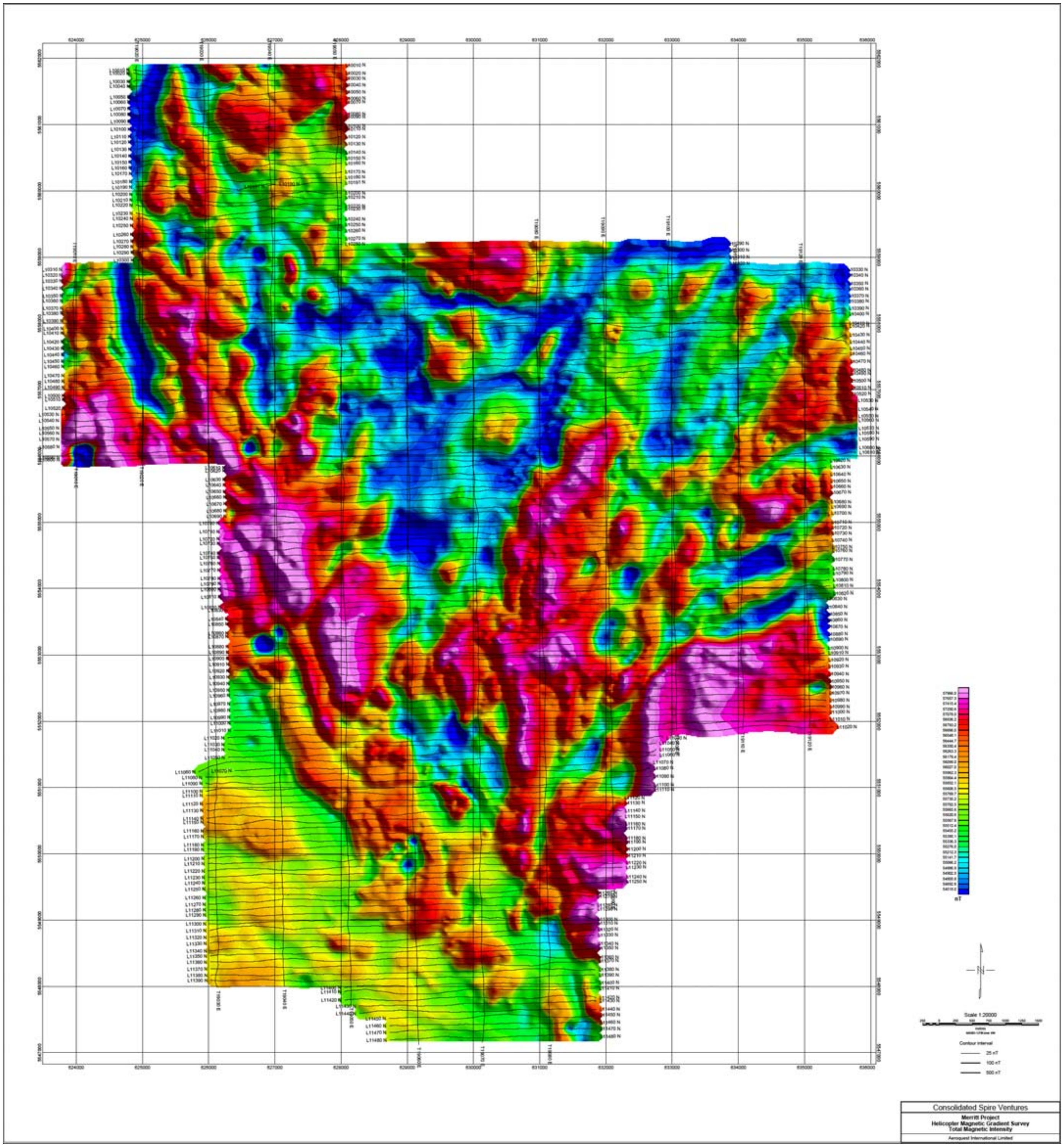
<u>Old Claim names</u>
(Pre-conversion to online staking) note: Claims "A to F" currently have no names, only tenure numbers.
A - PV13 to PV 29
B - PV13 to PV29
C - PV29 to PV36
D - NU1 to NU4 (including the old NIC 1 to NIC12)
E - NU5, PV38 to PV40
F - NU6, PV37

Appendix B:

Geophysical Maps (Airborne Magnetometer Survey)



B1. Measured Vertical Gradient (1:20,000 scale)



B2. Total Magnetic Intensity (1:20,000 scale)

Appendix C:

Prospecting Sample Descriptions

[redacted]

Appendix D:

Real-Time Kinematic Survey Results

Survey Pt No.	Northing	Easting	Elevation (m)	Location No.	Subarea	Survey Point Location Description	Depth of Trench using Steel Measuring Tape
1	5553681.923	628754.012	1667.365	RTKBASE	North Disc Zone	Base Station Location in the Red Zone - nail set	
101	5553888.5	629092.392	1580.674	H8	North Disc Zone	Helipad control point - nail set in rock	
200	5553855.166	629131.442	1566.585	T17-1	North Disc Zone	West end of Trench #2005-17 at 0 m sample stake	
201	5553854.003	629134.724	1567.899	T17-2	North Disc Zone	West end of gray andesite (weakly magnetic) - located 0.3 m west of the 4 m sample stake	
202	5553852.805	629137.797	1568.735	T17-3	North Disc Zone	centerline of qtz vein exposed in center of trench	
203	5553851.792	629140.836	1568.384	T17-4	North Disc Zone	West edge of 10 cm wide qtz vein outcropping between sample stakes 10 m and 11 m	
204	5553850.809	629145.603	1566.777	T17-5	North Disc Zone	East end of trench #2005-17 at 16 m stake	
205	5553895.137	629148.106	1565.111	T16-2	North Disc Zone	West side of 30 cm wide main vein inbetween sample stakes 10 m and 11 m	
206	5553893.354	629153.718	1563.447	T16-3	North Disc Zone	East end of Trench #2005-16	
207	5553903.527	629138.562	1565.443	T16-1	North Disc Zone	West end of Trench #2005-16 at 0 m sample stake	
208	5553947.977	629142.705	1565.002	T15-1	North Disc Zone	West end of Trench #2005-15 at 0 m sample stake	
209	5553946.416	629146.551	1566.684	T15-2	North Disc Zone	7 cm wide bladed qtz vein located between sample stakes 4 m and 5 m	
210	5553942.243	629157.686	1565.915	T15-3	North Disc Zone	East end of Trench #2005-15 at end of 16 m stake location	
211	5553981.931	629162.243	1562.194	T10-1	North Disc Zone	West end of Trench #2005-10 at 0 m stake	
212	5553979.799	629173.773	1562.461	T10-2	North Disc Zone	East end of Trench #2005-10 at 11 m stake	
213	5554010.894	629183.437	1560.904	T9-1	North Disc Zone	West end of Trench #2005-09	
214	5554011.61	629190.767	1563.685	T9-2	North Disc Zone	West edge of western 40 cm wide qtz vein located at 6 m stake	
215	5554010.525	629192.412	1563.186	T9-3	North Disc Zone	East end of eastern 30 cm wide qtz vein located at 8 m stake	
216	5554007.411	629197.87	1560.963	T9-4	North Disc Zone	Eastern edge of Trench #2005-09	
217	5554035.28	629204.511	1561.974	T8-1	North Disc Zone	North end of Trench #2005-08 at 0 m stake	
218	5554025.279	629205.947	1561.459	T8-2	North Disc Zone	South end of Trench #2005-08	
219	5554049.145	629202.784	1556.924	T7-1	North Disc Zone	Northwest end of Trench #2005-07 at 0 m stake	
220	5554034.329	629215.852	1560.256	T7-2	North Disc Zone	Southeast end of Trench #2005-07 at 20 m stake location	
221	5554042.842	629215.845	1559.743	T3-1	North Disc Zone	Northwest end of Trench #2005-03 at 0 m stake	

222	5554032.862	629221.655	1559.716	T3-2	North Disc Zone	Southeast end of Trench #2005-03 at 11.5 m stake location	
223	5554032.85	629221.641	1559.708	T4-1	North Disc Zone	Northwest end of Trench #2005-04 at 0 m stake	
224	5554024.78	629228.254	1556.354	T4-2	North Disc Zone	Southeast end of Trench #2005-04 at 10 m + stake	
225	5554047.766	629221.367	1558.519	T2-1	North Disc Zone	Northwest end of Trench #2005-02	
226	5554043.293	629224.188	1559.514	T2-2	North Disc Zone	West edge of Basalt dike in Trench #2005-02	
227	5554040.38	629226.382	1559.189	T2-3	North Disc Zone	Southeast end of Trench #2005-02	
228	5554052.615	629233.378	1557.665	V-1	North Disc Zone	Northern edge of outcropping 20 cm wide quartz vein	
102	5554062.988	629241.939	1554.638	H-1	North Disc Zone	Helicopter pad: Metal rebar set; located 135 m northwest of DDH-2006-01 collar	
229	5554077.028	629245.74	1552.105	T11-1	North Disc Zone	Northwest end of Trench #2005-11 at 0 m stake location	
230	5554074.805	629247.283	1552.406	T11-2	North Disc Zone	West edge of 27 cm wide quartz vein at 3 m stake location	
231	5554069.905	629252.232	1551.035	T11-3	North Disc Zone	Southeast end of Trench #2005-11 at 10 m stake location	
232	5554081.65	629259.445	1547.92	T18-1	North Disc Zone	West end of Trench #2005-18 at 0 m stake location	
233	5554075.525	629266.338	1544.864	T18-2	North Disc Zone	East end of Trench #2005-18	
234	5554112.935	629271.684	1540.062	T19-1	North Disc Zone	West end of Trench #2005-19	
235	5554106.66	629279.203	1539.438	T19-2	North Disc Zone	East end of Trench #2005-19	
236	5554217.034	629305.865	1499.343	DDH-20	North Disc Zone	DDH-2006-20 anchor location	
237	5554241.926	629279.811	1496.816	BL-10200	North Disc Zone	Baseline Station #10200N 5000E Steel Rebar set (elev at top of rebar)	
238	5554199.039	629243.688	1517.091	BL-10150	North Disc Zone	Baseline Station #10150N 5000E	
239	5554129.765	629177.653	1543.484	T14-1	North Disc Zone	West end of Trench #2005-14 at 0 m stake	
240	5554127.361	629185.08	1544.166	T14-2	North Disc Zone	East end of Trench #2005-14	
241	5554116.795	629175.455	1545.389	T13-1	North Disc Zone	West end of Trench #2005-13	
242	5554114.396	629182.09	1552.002	T13-2	North Disc Zone	East end of Trench #2005-13	
243	5554123.635	629182.275	1545.966	BL-10050	North Disc Zone	Baseline Station #10050N 5000E Metal Rebar set	
244	5554086.34	629153.274	1552.666	BL-10000	North Disc Zone	Baseline Station #10000N 5000E	
245	5554124.099	629105.222	1537.15	DDH-02	North Disc Zone	DDH-2006-02 anchor location	
246	5554040.308	629106.078	1563.827	DDH-03	North Disc Zone	DDH-2006-03 anchor location	
247	5554040.759	629105.649	1563.742	DDH-04	North Disc Zone	DDH-2006-04 anchor location	
248	5553981.493	629016.818	1592.96	N-1	North Disc Zone	Rebar set (control point)	
249	5554016.708	628945.202	1578.583	N-1ALT	North Disc Zone	Rebar set (control point)	
250	5553939.471	629073.176	1583.555	DDH-07	North Disc Zone	DDH-2006-07 collar location	
251	5553940.04	629072.473	1583.546	DDH-08	North Disc Zone	Old abandoned collar(?) of DDH-2006-07	

252	5553941.252	629067.732	1583.912	DDH-08	North Disc Zone	Half way inbetween collar and anchor for DDH-2006-08	
253	5553957.37	629199.42	1559.651	DDH-05	North Disc Zone	Anchor for DDH-2006-05	
254	5553957.787	629200.223	1559.534	DDH-06	North Disc Zone	Anchor for DDH-2006-06	
255	5553946.544	629315.701	1540.495	DDH-01	North Disc Zone	Half way inbetween collar and anchor for DDH-2006-01	
256	5553846.144	629059.105	1588.113	DDH-09	North Disc Zone	Half way inbetween collar and anchor for DDH-2006-09	
257	5553849.768	629054.588	1588.841	DDH-10	North Disc Zone	Half way inbetween collar and anchor for DDH-2006-10	
258	5553718.976	629053.416	1582.055	DDH-11	North Disc Zone	Collar for DDH-2006-11	
259	5553719.428	629052.831	1582.027	DDH-12	North Disc Zone	Collar for DDH-2006-12	
260	5553633.326	629003.548	1578.946	DDH-13	North Disc Zone	Half way inbetween two anchors for DDH-2006-13	
261	5553636.132	629000.057	1579.797	DDH-14	North Disc Zone	At anchor for DDH-2006-14	
262	5553739.689	628965.875	1607.042	SILT-1	North Disc Zone	Silt Sample Station #9600N 5100E Rebar set	
263	5553871.595	628955.612	1614.61	BL9700	North Disc Zone	Baseline Station #9700N 5000E Rebar Set	
264	5553800.154	628959.472	1611.681	N-2	North Disc Zone	Control Point Rebar set	
265	5553835.279	628923.283	1623.081	BL9650	North Disc Zone	Baseline Station #9650N 5000E Rebar Set	
266	5553831.021	628866.727	1633.219	N-2ALT	North Disc Zone	Control Point Rebar set	
267	5553807.98	628864.288	1637.395	N-2ALT-A	North Disc Zone	Control Point Rebar set	
268	5553714.798	628746.917	1669.457	H-RZ	North Disc Zone	Helicopter Pad in Red Zone: Nail set	
269	5553121.698	628743.093	1638.572	DDH-18	South Disc Zone	Collar location for DDH-2006-18	
103	5553151.268	628754.101	1633.775	H-18	South Disc Zone	Helicopter pad located north of DDH-2006-18: rebar set	
270	5553234.745	628758.654	1623.46	CP-1	South Disc Zone	Control Point Rebar set	
271	5553313.053	628770.81	1617.089	DDH-19	South Disc Zone	Collar Location for DDH-2006-19	
272	5553318.292	628840.668	1592.748	T-BCD-1B-1	South Disc Zone	South end of Trench #2005-BCD at BCD-1 sample location on 4 cm wide qtz vein	
273	5553320.485	628841.077	1592.608	T-BCD-2	South Disc Zone	West side of 6 cm wide qtz vein in Trench #BCD at location BCD-2 Nail set	
274	5553325.151	628842.174	1592.359	T-BCD-3	South Disc Zone	North edge of Trench #BCD-3 at BCD-3 location	
275	5553260.731	628762.253	1619.058	PV-PT-1-05-1	South Disc Zone	West side of Trench 1 m deep at sample location PV-PT-1-05-1 and #07-E13	
276	5553258.636	628765.401	1618.391	PV-PT-1-05-2	South Disc Zone	East side of Trench PV-PT-1-05-2; silt sample 9100N 5250E in middle of this trench	
277	5552971.823	628641.091	1646.455	DDH-17	South Disc Zone	Collar location for DDH-2006-17	
278	5552972.291	628641.83	1646.433	DDH-15	South Disc Zone	Collar location for DDH-2006-15	
279	5552972.935	628639.267	1647.755	DDH-16	South Disc Zone	Anchor location for DDH-2006-16 (No evidence of hole collar)	
104	5552924.547	628726.42	1649.98	H-T-6	South Disc Zone	Helicopter pad south of Trench #2007-06 Rebar set	
280	5552865.489	628628.556	1653.112	DDH-21	South Disc Zone	Collar location for DDH-2006-21 (hole plugged with wooden tree branch)	

281	5552730.145	628600.025	1655.777	DDH-22	South Disc Zone	Collar location for DDH-2006-22 (hole plugged with wooden tree branch)	
282	5552733.685	628595.821	1657.015	DDH-23	South Disc Zone	Collar location for DDH-2006-23	
283	5552821.255	628644.411	1656.688	T29-1	South Disc Zone	West end of Trench #2005-29	
284	5552819.987	628645.739	1656.519	T29-2	South Disc Zone	West end of 0.5 m wide qtz vn.; half way inbetween 1 m and 2 m stakes Rebar set	
285	5552818.687	628650.294	1655.148	T29-3	South Disc Zone	East end of Trench #2005-29	
286	5552846.412	628631.287	1657.825	T1-1	South Disc Zone	West end of Trench #2007-01 at T-1-1 wooden stake	
287	5552835.738	628640.317	1657.369	T1-2	South Disc Zone	West edge of sericitization alteration zone - pt on south side of trench; T1-2 wooden stake	1.8 m
288	5552833.663	628642.6	1657.226	T1-3	South Disc Zone	West edge of dark gray magnetic basalt dike - pt on south side of trench #2007-01	2.0 m
289	5552831.161	628645.496	1656.618	T1-4	South Disc Zone	East edge of magnetic basalt dike - pt on south side of trench #2007-01	1.7 m
290	5552829.851	628647.604	1656.387	T1-5	South Disc Zone	West end of silicification zone; west end of sample #2134; Trench #2007-01	1.2 m
291	5552827.58	628650.336	1656.242	T1-6	South Disc Zone	West end of sample #2136 on largest vein in trench - pt on south side of trench #2007-01	
292	5552824.512	628655.491	1654.267	T1-7	South Disc Zone	Contact of sericitized bedrock and till - pt on south side of trench; east end of sample #2140	1.6 m
293	5552822.188	628659.306	1653.142	T1-8	South Disc Zone	East end of Trench #2007-01 Rebar set	0 m
294	5552792.147	628688.511	1660.669	T2-1	South Disc Zone	West end of Trench #2007-02	0 m
295	5552785.977	628696.152	1661.962	T2-2	South Disc Zone	West edge of 41 cm wide qtz vn at 208/74NW; west side of sample #2120- Trench 2007-02	1.4 m
296	5552783.717	628698.448	1662.074	T2-3	South Disc Zone	west edge of 3.0 m wide qtz vn - SIL BXA vn; east end of sample #2122	1.6 m
297	5552781.294	628701.032	1662.146	T2-4	South Disc Zone	Contact of qtz vn and maroon basalt; east edge of sample #2125; north side of trench 2007-02	1.7 m
298	5552775.44	628707.703	1663.415	T2-5	South Disc Zone	Contact of maroon basalt and silicified + sericitized basalt; east end of sample #2128	1.8 m
299	5552770.925	628712.093	1664.474	T2-6	South Disc Zone	West edge of qtz vein/SIL BXA; west end of sample #2132; noprth end of trench	1.5 m
300	5552769.134	628714.08	1664.85	T2-6A	South Disc Zone	East end of Sample #2132 on north side of trench #2007-02	1.6 m
301	5552767.125	628716.32	1664.785	T2-7	South Disc Zone	East end of sample #2141 on north side of trench #2007-02;	1.9 m
302	5552754.747	628730.153	1661.813	T2-8	South Disc Zone	Contact of sericitized + qtz vn alteration and nonmagnetic maroon basalt; west end of sample #2153	1.3 m
303	5552753.204	628731.744	1661.49	T2-9	South Disc Zone	Contact of maroon magnetic basalt and magnetic amyg basalt; east end of sample #2153	1.8 m
304	5552751.69	628733.628	1661.248	T2-10	South Disc Zone	Contact of magnetic amyg basalt and maroon nonmagnetic basalt; east end of sample #2154	1.6 m
305	5552749.793	628735.168	1660.92	T2-11	South Disc Zone	Contact of nonmagnetic maroon basalt and silicified + sericitized zone; west end of sample #2156	1.7 m
306	5552744.436	628741.463	1659.947	T2-12	South Disc Zone	West end of purple SIL BXA zone; west end of sample #2162	1.7 m
307	5552735.243	628753.41	1657	T2-13	South Disc Zone	West end of SIL BXA/QTZ VN; west end of sample # 2173; north side of trench	1.2 m
308	5552733.23	628755.117	1655.982	T2-14	South Disc Zone	East end of SIL BXA/QTZ VN; east end of sample #2174	1.3 m
309	5552731.809	628756.346	1655.507	T2-15	South Disc Zone	Contact of Basalt bedrock and Till; east end of sample #2175; north side of trench	1.7 m
310	5552729.092	628757.645	1654.893	T2-16	South Disc Zone	East end of Trench #2007-02 Rebar set	0 m
311	5552712.898	628688.291	1656.515	T5-1	South Disc Zone	West edge of Trench #2007-05	0 m

312	5552706.23	628707.024	1656.629	T5-2	South Disc Zone	West edge of fracture + FeOx zone; west edge of sample #2213; structure strikes 200-205 degrees	1.8 m
313	5552705.043	628711.064	1656.702	T5-3	South Disc Zone	Edge of western 300 degree fault zone; east end of sample #2215; north side of trench #2007-05	1.9 m
314	5552702.808	628712.148	1656.69	T5-4	South Disc Zone	Eastern edge of western Fault Zone on south side of trench; eat end of sample #2216	2.0 m
315	5552701.503	628714.973	1656.546	T5-5	South Disc Zone	West edge of 0.4 m wide planar qtz vn oriented 161/58SW; west edge of sample #2218/2219	1.9 m
316	5552703.214	628715.668	1656.524	T5-6	South Disc Zone	West end of 300 degree FZ; north side of trench; at intersection of 80 degree FZ; W end 2218	1.9 m
317	5552700.684	628717.169	1656.354	T5-7	South Disc Zone	East end of 300 degree fault zone; on south side of trench; east end of sample #2218/2219	1.9 m
318	5552693.419	628739.193	1656.419	T5-8	South Disc Zone	West end of moderately silicified + FeOx zone; on northern side of trench	1.4 m
319	5552692.307	628740.914	1656.162	T5-9	South Disc Zone	Qtz + FeOx vn; point on northern side of trench #2007-05	1.2 m
320	5552689.543	628740.928	1656.014	T5-10	South Disc Zone	East end of Trench #2007-05	0 m
321	5552729.155	628741.292	1659.646	CP-2	South Disc Zone	Control point in South Discovery Zone: Rebar set	
322	5552834.803	628695.843	1662.036	T4-1	South Disc Zone	West end of Trench #2007-04	0 m
323	5552831.832	628700.971	1662.92	T4-2	South Disc Zone	West end of highly silicified zone + SIL BXA; on east end of sample #2199; pt on south side of trench	1.6 m
324	5552831.382	628702.592	1662.813	T4-3	South Disc Zone	East end of highly silicified/SIL BXA zone on east end of sample #2198; pt on south side of trench	1.9 m
325	5552830.727	628704.312	1662.562	T4-4	South Disc Zone	West end of 0.5 m wide silicified zone; on east end of sample #2197; pt on south side of trench	1.8 m
326	5552829.099	628709.484	1661.123	T4-5	South Disc Zone	Contact of ser + argillized amyg basalt and less altered amyg basalt; on east end of #2194; S	1.9 m
327	5552827.148	628715.336	1659.912	T4-6	South Disc Zone	Contact of sericitized = argillized amyg basalt and less altered amyg bas; pt on S side of trench	1.8 m
328	5552825.447	628720.535	1659.033	T4-7	South Disc Zone	Contact of less altered basalt and sericitized + argillized basalt; on eastern edge of #2189 sample	2.0 m
329	5552822.929	628727.174	1658.729	T4-8	South Disc Zone	Western edge of 3.9 m wide qtz vn; western edge of sample #2183/2184 duplicate; S side of trench	1.9 m
330	5552821.736	628730.987	1658.252	T4-9	South Disc Zone	Eastern edge of 3.9 m wide qtz vn; on eastern side of sample #2182; pt on south side of trench	2.1 m
331	5552820.42	628734.684	1657.617	T4-10	South Disc Zone	Contact of amyg basalt and till; on eastern end of sample #2180	2.1 m
332	5552817.015	628747.452	1653.393	T4-11	South Disc Zone	East end of Trench #2007-04	0 m
333	5552811.909	628758.554	1650.799	T4-A-1	South Disc Zone	Western end of "mini-trench" located east of the eastern end of the main Trench #2007-04	1.9 m
334	5552810.112	628765.797	1650.711	T4-A-2	South Disc Zone	Eastern end of "mini-trench" located east of the eastern end of the main Trench #2007-04	1.5 m
335	5552896.615	628709.002	1659.069	T3-1	South Disc Zone	West end of Trench #2007-03	0 m
336	5552887.68	628721.65	1659.539	T3-2	South Disc Zone	Western end of silicified amyg basalt; east end of sample #2102; pt on south side of trench	0.4 m
337	5552886.896	628723.46	1659.042	T3-3	South Disc Zone	East end of silicified amyg basalt; east end of sample #2103; pt on south side of trench #2007-03	0.9 m
338	5552881.126	628734.166	1656.179	T3-4	South Disc Zone	West edge of large main vein; east end of sample #2110; pt on south side of trench #2007-03	0.6 m
339	5552878.072	628742.524	1652.72	T3-5	South Disc Zone	Western edge of large main vein; east side of sample #2110; pt on south side of trench	1.5 m
340	5552876.769	628745.13	1651.15	T3-6	South Disc Zone	Eastern edge of eastern fault zone at eastern side of sample@2178; pt on north side of trench	1.7 m
341	5552875.636	628746.876	1650.328	T3-7	South Disc Zone	Contact of Basalt and Till; east end of sample #2179; pt on north side of trench	1.9 m
342	5552873.528	628749.658	1648.741	T3-8	South Disc Zone	Eastern edge of Trench #2007-03	0 m

343	5552891.627	628736.954	1654.182	T26-1	South Disc Zone	Western edge of Trench #2007-26 at 0 m stake	
344	5552888.085	628742.337	1652.383	T26-2	South Disc Zone	Eastern edge of Trench #2007-26 at 7 m stake	
345	5552934.662	628711.274	1650.005	T6-1	South Disc Zone	Western end of Trench #2007-06	0 m
346	5552932.966	628715.13	1650.007	T6-2	South Disc Zone	Western edge of small qtz vn on south side of trench	1.1 m
347	5552928.787	628728.231	1649.833	T6-3	South Disc Zone	Western edge of large qtz vn; located half way inbetween samples 2225-26/2227	1.5 m
348	5552927.229	628732.791	1648.983	T6-4	South Disc Zone	Eastern edge of large qtz vn; near the western end of sample #2227	1.7 m
349	5552926.794	628734.152	1648.801	T6-5	South Disc Zone	Contact of sericitized + silicified basalt and purple clay altered basalt	1.9 m
350	5552925.076	628740.732	1647.144	T6-6	South Disc Zone	Contact of purple basalt and and Till	1.8 m
351	5552924.973	628744.389	1646.248	T6-7	South Disc Zone	Eastern end of Trench #2007-06; rebar set	0 m
352	5552922.676	628713.472	1651.407	T25-1	South Disc Zone	Western end of Trench #2005-25 at 0 m stake	
353	5552921.585	628715.604	1651.844	T25-2	South Disc Zone	Western end of 0.75 m wide qtz vn in Trench #2005-25	
354	5552921.012	628716.243	1651.928	T25-3	South Disc Zone	Eastern end of qtz vein in Trench #2005-25	
355	5552918.669	628718.686	1651.816	T25-4	South Disc Zone	Eastern end of Trench #2005-25	
356	5552955.126	628741.798	1643.314	T7-1	South Disc Zone	Eastern end of Trench #2007-07	0 m
357	5552957.209	628740.051	1643.679	T7-2	South Disc Zone	Contact of qtz vn and Till in Trench #2007-07	1.7 m
358	5552959.867	628735.774	1644.238	T7-3	South Disc Zone	10 cm wide qtz vein in Trench #2007-07	1.7 m
359	5552961.369	628733.182	1644.726	T7-4	South Disc Zone	Western end of ~30 cm wide qtz vn in Trench #2007-07	1.6 m
360	5552963.451	628727.82	1645.084	T7-5	South Disc Zone	Eastern side of 0.35 m wide qtz vn in Trench #2007-07	1.1 m
361	5552963.528	628727.456	1645.112	T7-6	South Disc Zone	West side of 0.35 m wide qtz vn in Trench #2007-07	0.9 m
362	5552962.496	628725.998	1646.207	T7-7	South Disc Zone	5 cm wide qtz vn in Trench #2007-07	1.0 m
363	5552968.165	628719.377	1644.138	T7-8	South Disc Zone	5 cm wide qtz vn in Trench 2007-07	1.0 m
364	5552970.633	628713.162	1642.235	T7-9	South Disc Zone	Western end of Trench #2007-07	0 m
365	5553002.486	628771.834	1630.298	CP-3	South Disc Zone	Control Point set north of Trench #2007-07: Rebar set	
366	5552900.127	628722.229	1657.443	T24-1	South Disc Zone	West end of Trench #2005-24 at 0 m stake	
367	5552895.203	628726.686	1657.211	T24-1	South Disc Zone	East end of Trench #2005-24 at 6.4 m stake location	
368	5552862.083	628725.602	1659.051	CP-4	South Disc Zone	Control point located between Trenches 2007-02 and Trench #2007-03	
369	5552805.674	628703.325	1661.742	T-TENT-1	South Disc Zone	West end of Trench #2005-32 at 0 m stake location	
370	5552802.178	628710.937	1661.966	T-TENT-2	South Disc Zone	East end of Trench #2005-32 at 8.2 m stake location	
371	5552850.925	628676.062	1653.677	CP-5	South Disc Zone	Control point located east of DDH-2006-21 just east of main trail	
372	5552886.295	628678.363	1655.58	V-2	South Disc Zone	Western end of vein subcropping at southern end of outcrop	
105	5552775.491	628718.836	1665.22	H-T2	South Disc Zone	Helicopter Pad located south of Trench #2007-02	

Appendix E:

2007 Drill Logs (DDH 2007-01 to DDH 2007-10)

E1. Geology Core Log Legend including Structural Legend for Cross Sections

PROSPECT VALLEY PROJECT
British Columbia, Canada

GEOLOGY LOG FORM LEGEND
September 22, 2007
Revised November 27, 2007

PV Project geology drill log legend rev 11_27_2007 word 97.doc

To (meters) — Indicates assay sample interval as selected by senior geologist

Sample No. — Indicates sample number that is sent to the Assay Laboratory that represents the selected assay interval listed above (NS = no sample taken)

Structure — Graphic log characterization:

- Weakly fractured
- Moderately fractured
- Highly fractured
- Fracture with fracture angle relative to core axis
- Bxa - Breccia
- Clast-rich Breccia
- Matrix-rich Breccia

- Fault gouge
- Fault gouge with clay

Slk - Slickensides labeled on shear plane of interest

FZ - Fault Zone

EFZ - Early Fault Zone/Hydrothermal Breccia (see Rock Codes)

LFZ - Late Fault Zone (see structural overlay legend)

MINERALIZATION: Graphic log characterization

- Planar vein with orientation relative to core axis
- Wavy vein
- Stockwork veins
- Sheeted Veins (numerous veins at same trend/strike) with . orientation relative to core axis
- Quartz vein Breccia (with triangle shape)
- Quartz-rich vein (red color)
- Calcite-rich vein (pencil gray color)
- Chlorite-rich vein

Volcanic Rock Lithology Description

Magnetism Intensity Using pencil Magnet

NM - Nonmagnetic
WM - Slightly to weakly magnetic
MM - Moderately magnetic

Volume percent plag phenocrysts (plagioclase)

Volume percent mafic phenocrysts

Groundmass characterization:
AP - Aphanitic groundmass
Cryst - Very fine-grained and crystalline groundmass

Volume percent amygs: Volume percent amygdules in volcanic rock

Average amyg size: Average amygdule size in millimeters

Primary amyg mineral fill: Primary amygdule mineral fill (see mineral abbreviations)

Secondary amyg mineral fill: Secondary amygdule mineral fill (see mineral abbreviations)

INTENSITY OF ALTERATION SCALE

Trace	TR	<1 percent by volume (also listed as 0.1% value)
Weak	WK	1- 10 percent by volume
Moderate	MOD	10-40 percent by volume
Strong	STR	40-70 percent by volume
Intense	INT	>70 percent by volume

ALTERATION

Pervasive Silicification: Pervasive, very fine grained to aphanitic alteration to the volcanic rock groundmass.
K-feldspar: beige, hard, aphanitic pervasive alteration to volcanic rock groundmass that typically occurs as alteration haloes to quartz veined zones. Locally observed as white to light pink aphanitic adularia in quartz-rich veins.
Sericite: white, very fine grained micaceous alteration to volcanic rock groundmass that locally occurs as alteration envelopes to quartz-rich vein zones.
Clay: white, very fine grained argillic alteration to volcanic rock groundmass that locally occurs as alteration envelopes to quartz-rich vein zones.
Calcite: white, locally light orange brown (ankerite). Occurs as disseminated alteration to plagioclase phenocryst sites, or as veinlet or vein swarms distal to or associated with quartz-rich vein zones. May also occur as amygdule mineral fillings in the zeolite facies regional metamorphism assemblage, or as veins and veinlets with chlorite and/or hematite associated with propylitic alteration.
Chlorite: Dark green to green. Occurs as disseminated alteration to mafic phenocryst sites, amygdule mineral fillings, and as veins and veinlets with calcite and lesser quartz. Chlorite appears to be stable in multiple alteration assemblages: K-feldspar-rich potassic alteration, in some quartz-rich vein zones, and more typically in the distal propylitic alteration.
Other: Zeolite Facies “Regional or Burial Metamorphism” – The natural state of the volcanic rocks prior to hydrothermal alteration. The zeolite minerals mostly occur as vesicle fillings (amygdules) and may include: laumontite, chabazite, phillipsite, scolecite, and/or heulandite. Other non-zeolite minerals associated with this assemblage include prehnite, epidote, K-feldspar, smectite, chlorite, celadonite, calcite, siderite, quartz, apatite, sphene, and pumpellyite.

Other Minerals: Mineral Abbreviations:

Ank -	Ankerite
Amq -	Amythyst quartz (pink to purple quartz)
Aspy -	Arsenopyrite
Cel -	Celadonite (Dark green color) Hardness = 2 K(Mg,Fe+2)(Fe+3,Al)Si4O10(OH)2
Cal -	Calcite
Chl -	Chlorite
Clay -	Clay
Ep -	Epidote
Gt -	Goethite (dark brown to orange brown colored iron oxide)
Hem -	Hematite (dark reddish brown colored iron-oxide)
Jar -	Jarosite (yellowish colored iron-oxide)

Mq -	Microcrystalline quartz (milky white)
Mt -	Magnetite
Ol -	Olivine
Opq -	Opaline quartz
OSq -	Open-space translucent to clear drusy quartz
Pl -	Pyrophyllite
Pr -	Prehnite
Py -	Pyrite
Px -	Pyroxene
Ser -	Sericite (fine-grained clear to white micaceous mineral)
Zeol -	Zeolites (white to green color varieties) See other page for mineral characteristics

VEIN DESCRIPTIONS

Percent total veins (and veinlets) by volume – Volume percent vns/vnlets by volume (usually in a defined sample interval)

Quartz # Vns – Number of quartz-rich veins in assay sample interval or defined zone

Calcite # Vns – Number of calcite-rich veins in assay sample or defined zone

Other # Vns – Number of variable mineral-rich veins in sample interval or defined zone

VN Character: Vein Character

- Vnlt - Occassional Veinlets (wavy veins < 1 mm wide)
- VN - Occassional Veins > 1mm wide
- Sht - Sheeted Veins/Veinlets
- Stk - Stockwork Veins/Veinlets
- α - Alpha Vein (massive, wht, microcrystalline, qtz-rich vn typically >0.3 m wide; in trenches)

VN Character – P or W: Vein Character

- P - Planar vein walls
- W - wavy or sinuous vein walls

Epithermal Vn Desc: Epithermal Vein description

- Mq - Microcrystalline (chalcedonic) massive quartz (no quartz crystals visible to the naked eye)
- Band - Banded quartz veins (commonly millimetric or submillimetric in width)
- Crt - Crustiform: submillimeter microbanding of quartz vein parallel and symmetrical to vein walls
- Col - Colloform: submillimeter rounded quartz microbands not parallel or symmetrical to vein walls
- Druz – Druzzy quartz: very fine-grained (<1 mm diam) crystalline open-space quartz with minor OS
- OS - Medium to coarse-grained (> 1 mm to 4 mm diam) open space crystalline qtz crystals in vein
- Cmb – Very coarse gr (>4 mm diam) comb quartz crystals with long axes perpendicular to vein wall
- Bld - Bladed Quartz (Quartz replacement after calcite or possibly barite)
- SBX – Siliceous Breccia: Quartz-rich vn with bxa textures, or brecciated wallrock or multiple generations of qtz

Average VN Size (cm): average vein width in sample interval or defined zone

Maximum VN Size (cm): maximum vein width in sample interval or defined zone

VN angle to core axis: Vein angle to core axis: Dominant vein angle to core axis (0 degrees is parallel to the long length of the core axis and 90 degrees is perpendicular to core axis).

ABBREVIATIONS

COLORS:

Gray	gr
Brown	brn
Orange	or
Green	grn
Pink	pnk
Pinkish	pnksh
Maroon	mar
White	wht
Light	lt
Dark	dk
Spotted	spott

ZEOLITE MINERALS

Chabazite: Ca(Al2Si4)O126H20, hexagonal, rhombohedral crystals/cleavage, in cavities of volcanic rocks; often penetration twins, Hardness = 4-5

Phillipsite: (K2Na2Ca)(Al2Si4)O12 4-5H20 white to colorless, cruciform, small rod-like prismatic crystals, in basaltic rocks, Hardness = 4-4.5

Scolecite: Ca(Al2Si3)O10 3H20 prismatic fibrous radiating crystals, lines cavities in basalt lavas, Hardness = 5 – 5.5

Heulandite: (CaNa)l2Si7O18 6H20 perfect basal cleavage, hardness = 3.5-4

Laumontite: CaAl2Si4O12 4H20 white powdery surface, 2 directions of cleavage, Hardness = 4

Rock Code Geological units as defined by 2007 geological mapping and core logging for the South and North Discovery Zone Areas

ABBREVIATION		**Rock Type and Description**
Till	Glacial Till –	Clayey or silty sand with gravel, cobbles, and some boulders of variable rock compositions
	mid Cretaceous SPENCES BRIDGE GROUP (Pimainus and Spius Creek Formations)	
mpA	Mafic-phyric Andesite –	Medium to dark gray to greenish gray, weakly to moderately magnetic, with 2 – 7 pct mafic phenocrysts < 1.5 mm diam set in a medium to dark gray fine-grained crystalline groundmass.
B	Basalt –	Dark brown to black, weakly to moderately magnetic, crystalline very fine-grained groundmass, and massive.
ABp Bap	Feldspar-phyric Andesitic Basalt – Basaltic Andesite	Maroon, to dark gray, slightly to moderately magnetic, with 20 to 30% plagioclase phenocrysts and 5 to 20 pct mafic phenocrysts set in an aphanitic groundmass.
Ap	Andesite Porphyry (late dikes) –	Light to medium gray to light greenish gray, moderately magnetic. With 10 to 50 pct fine-grained subhedral to euhedral white plagioclase phenocrysts and rare to up to 5 pct fine-grained hornblende phenocrysts set in an aphanitic groundmass. With chilled sharp well-defined margins. The late dike postdates Au mineralization and typically has minor calcite veinlets. The late dike rock locally contains xenoliths of biotite granodiorite and fragments of quartz vein and silica breccia.
Dp	Diorite Porphyry (late dikes) –	Dark gray to dark greenish gray, moderately magnetic. With 15 pct fine grained mafic phenocrysts and trace quartz phenocrysts set in a very fine grained crystalline groundmass. With chilled sharp well-defined margins. Logged in hole DDH 2007-10.
EFZ	**Early Fault Zone/Hydrothermal Breccia** –	Clast-rich reddish to pinkish breccia dominated typically by one volcanic rock unit. Clasts are mostly subangular but are locally angular subrounded and usually less than 12.5 cm in diameter (ave size = 0.3 – 1.0 cm diameter). Moderate rotation of the clasts is common. Crackle breccias may also be included in this rock type but is usually present adjacent (distal) to hydrothermal breccia. This rock unit typically forms competent rock and is moderately cemented with a fine-grained hydrothermal matrix (forming 10-20% of the rock by volume) dominated either by assemblages of (1) hematite + quartz + pyrite at shallow levels of the hydrothermal system; or (2) hematite + calcite + pyrite and zeolite deeper in the system. Rare veins and veinlets of hematite + microcrystalline quartz + py may be associated with this rock unit (e.g. the upper part of DDH 2006-05). Clasts are typically pervasively altered and bleached to k-feldspar and/or weak sericite/clay with disseminated py. This hydrothermal breccia unit may or may not contain later cross-cutting microcrystalline quartz veins.
amB	**Amygdaloidal Basalt** –	Dark gray to maroon, mostly nonmagnetic in highly altered zones and

amBp moderately magnetic in less altered zones. May contain up to 10 pct mafic phenocrysts set in an aphanitic groundmass. With >5 to 60 pct amygdules by volume (average = 20%) filled with zeolites, celadonite, prehnite, opaline quartz, calcite, chlorite, clay, microcrystalline quartz, open-space quartz, iron-oxides, and pyrite. This unit is typically located in the hangingwall of the EFZ. This is the main host rock at the Prospect Valley Project .

I bxa **Intraformational Breccia** – Light to dark maroon, nonmagnetic to slightly magnetic, clast-rich breccias dominated by one volcanic rock unit. Clast margins are typically not sharp and difficult to distinguish from the aphanitic volcanic groundmass. Believed to be associated in space and time with the following volcanic rock flow units: amBp, amB, Bp, and/or B (as qualifiers). I bxa hosts Au mineralization in DDH 2006-05.

Bp or B **Mafic-phyric to Aphyric Basalt** – Maroon, nonmagnetic where moderately weathered or hydrothermally altered, to moderately magnetic where less weathered or less hydrothermally altered. May contain up to 10 pct mafic phenocrysts set in an aphanitic groundmass with minor amounts of amygdules at the flow bases or tops. Locally massive with no phenocrysts. Typically intercalated with flows of amygdaloidal basalt listed above. The aphyric rock units host Au mineralization in the 2007 trenches in the South Discovery Zone. Mafic-phyric basalt locally hosts Au mineralization in the North Discovery Zone.

ApF **Andesite Porphyry (flows)**– Light to medium gray to light greenish gray, moderately magnetic. With 10 to 50% fine-grained subhedral to euhedral white plagioclase phenocrysts and rare to up to 5 pct fine-grained hornblende phenocrysts set in an aphanitic groundmass. May contain minor amounts of amygdules <5 pct by volume. Hole DDH 2006-19 hosts Au-bearing qtz vns in this rock unit as well as in Trench 2005-17 in the North Discovery Zone. A large body of ApF with similar textures as the Ap late dike also outcrops on the east side of the South Discovery Zone Map area.

T bxa Tuff Breccia – Light to medium green, moderately magnetic. Clast- rich competent volcanic breccias consisting of heterogeneous volcanic rocks of feldspar-phyric andesitic basalt, basaltic andesite, andesite, and aphyric basalt that are subangular to subrounded and less than 0.6 m in diameter (average clast size = 7 mm to 1.5 cm). With occassional clasts of amygdaloidal basalt or maroon aphyric basalt. Clastic textures are common to this rock with also some matrix consisting of andesitic aphanitic groundmass. Clast margins are always sharp and well defined. Typically intercalated with aphyric basalt. This rock unit is typically strongly altered to chlorite. Typically located in the footwall of the EFZ but locally present in the hanging wall rocks (e.g. in DDH-2007-05).

B Basalt – Dark brown to black, moderately magnetic, massive with a crystalline very fine-
Bp Mafic-phyric Basalt grained groundmass, and massive. May contain up to 10 pct mafic phenocrysts. These units are located in the footwall of the EFZ.

C-A Chert-Argillite Black, carbonaceous, laminated to thinly bedded; dominated by argillite. Rare
A Argillite black chert interbeds have also been identified with this rock unit. Locally intercalated with basalt and volcaniclastic rocks consisting of tuff, crystal tuff, and tuffaceous sandstone (described below). Rare coal lenses occur in the argillite rock. These units are located in the footwall of the EFZ.

CT Crystal Tuff – Lt gray to gray, typically nonmagnetic. With up to 60 pct subangular lapilli

L hT	Lithic Tuff -	clasts up to 1.5 cm in diameter. With rare fine-grained fragments of black
LT	Lapilli Tuff-	argillite < 1 cm long. This unit is typically interbedded with light gray, fine-
Ts	Tuff Sandstone-	grained laminated tuff, coarse very thinly bedded tuffaceous sandstone, and
A-S	Argillite – Sandstone	locally with black carbonaceous argillite. The various rock names are used to
VT	Vitric Tuff	describe the different rock textures: Crystal tuff used for plagioclase phenocrysts stable in a tuffaceous rock; lithic tuff to describe multiple volcanic rock lithologies within clast-rich volcanic rock; lapilli tuff to describe grain size of the rock clasts (2-6.4 cm diameter); tuffaceous sandstone for fine-grained clastic tuff units with grain sizes <2 mm in diameter; vitric tuff for very fine-grained quenched tuff textures. Volcaniclastic textures predominate. These units almost exclusively occur in the footwall of the EFZ.

NOTES: (1) Bolded volcanic rock units are host rocks for Au-bearing quartz-rich vein and disseminated mineralization.
(2) Rocks are described as being located in the "Hanging wall" or "Footwall" relative to the main southwest-striking and westerly dipping Early Fault Zone/Hydrothermal Breccia unit
(3) Many of the mafic volcanic rocks were identified by color and visible phenocryst minerals (and not based on geochemistry) with basalt being typically dark gray to black with 0 to 10 pct mafic phenocrysts, and andesite being typically lighter in color (lt. to medium gray to green) with plagioclase + - mafic phenocrysts.

STRUCTURE OVERLAY LEGEND FOR CROSS-SECTIONS

EFZ **Early Fault Zone/Hydrothermal Breccia** - clast rich angular breccia, crackle breccia of amBp or Bp, pinkish to maroon; Matrix minerals dominated by red to dark reddish brown hematite make up 10 to 20 percent of the rock by volume and are zoned vertically in the hydrothermal system from (1) shallow hematite + microcrystalline quartz + pyrite to (2) deep hematite + calcite + pyrite ± zeolite. With angular to subangular homogeneous clasts ranging from 0.1mm to 12.50 cm in diameter.

1. Clast color
   a. cream, beige, or pinkish-salmon color typical (DDH 2006-21)
   b. dark grass green (only in DDH 2007-10 and DDH 2006-20)
   c. grayish-beige rounded "submelted" clasts with microcrystalline smokey-gray qtz borders/selvedges (IRM-2006-19)
2. Matrix color in shallow levels of the hydrothermal system
   a. dark red, deep smokey salmon, or dark cherry color for Hem-rich matrix, typical color for EFZ and "brecciated veins" of EFZ in most of holes
   b. grayish-red, grayish, or smokey-gray color if abundant silicification + SBX ± (Cal+Chl+Qtz veins)
   c. black color with Cal+Hydro(?)Biotite observed in "brecciated veins" of EFZ only in RM-2006-19, unusual matrix
3. Py
   a. disseminated Hem matrix with Py < = 0.1mm up to 5% by volume
   b. blebs of microcrystalline Py aggregates up 2 mm irregular spotted in approximately "clean" Hem matrix
   c. disseminated cream clasts up to 5% by volume in "clean" Hem matrix
4. Textures and thickness of EFZ rock
   a. Wide zones with relatively uninterrupted or unbroken intervals (not interrupted or cross cut by later SBX, late dikes, or LFZ
   b. fragments of EFZ if broken or cut to pieces by later events of SBX, late dikes, or LFZ – very difficult to recognize, it is necessary to rigorously clean all slimes and muds from outer surface of core pieces
   c. Veins of EFZ up to 18 cm wide; often referred to as "fractures of EFZ" and/or "brecciated veins of EFZ" in the logs with sharp and planar vein walls

Ap **Late Dikes of Andesite porphyry**: gray to light gray, greenish gray medium grained, moderately magnetic, with phenocrysts of mafics (Amph 5-7%) and Plagioclase (zoned, carbonated and/or chloritized 10-35%) porphyries with aphanitic groundmass at the contact and crystalline groundmass in core; Contacts of the late dikes may be complicated by later structural events.

1. Contacts

a. sharp contacts common
b. Late dikes with chilled margins locally exhibit transitional contacts as usual light-brown to light beige color variations
c. contact zones of the late dikes may contain xenoliths of SBX or submelted quartz 0.3-0.5 mm in diameter;
d. The late dikes typically contain qtz + Cal ± Py veinlets < 0.2 cm wide and local disseminated to fine grained Py
e. Sheared contacts common, sub-melted mafic rocks (Bp, amBp), with mylonite texture and Chl+Cal veinlets or lens-like veinlets, ± trace yellowish-honey grossularite garnet at the contacts with Cal rich veined rock

2. Xenoliths
   a. SBX and/or qtz clasts at outer contact margins of late dikes
   b. Argillite, granodiorite, or qtz monzonite in core of late dikes

3. Apophyses or narrow dikelets of AP late dike unit are common above or below the main dike zone

LFZ Late Fault Zone – gouge with clay, MOD to STR carbonated clay

1. Color of the rock is dependant upon the original rock – light gray (SBX), light maroon (amBp), greenish-gray (Ap)
2. May consist of disseminated Py grains < 0.1 mm; or spherical grains in mylonite matrix (rare – see Figure on page 5 in original log DDH-2007-05)
3. Structure
   a. WK clast rich as usual
   b. MOD to HIGH clay rich
   c. Highly fractured rocks with abundant Slickensides; long uninterrupted intervals that correlate from hole to hole with gouge-clay rich intervals
4. Thickness of the LFZ varies from <0.5 m (typically in the North Discovery Zone) to 10's of meters (DDH-2007-01, typical for the South Discovery Zone)
5. Occurrence of LFZ in the volcanic rock package
   a. Narrow zones are typically located stratigraphically above the EFZ and Ap late dike units
   b. Below the EFZ and Ap late dike (typical)
   c. Along the EFZ and Ap late dike and/or local LFZ along contacts of Ap late dike (STR fractured and sheared zones with gouge and clay)
   d. LFZ cuts EFZ and/or AP lated dike units at shallower dip

Highly fractured intervals related to the LFZ ± slickensides

Qtz veins, Stockwork veins, Crackle breccias located in hanging wall of EFZ

a. White qtz veins Sht, Stk, and SBX associated with greenish ± salmon ± cream alteration: Band, pinkish KF in core of qtz veins and isolated veins and veinlets, Crt, Col)
b. Py rarely observed in veins (probably very fine?), but Py is more abundant as disseminations and very fine grains concentrated at vein wall contacts, in amygs, or clasts of brecciated rock

SBX There are two types of SBX

a. Located in hanging wall of EFZ SBX-I (typical) consisting of gray qtz + smokey gray qtz ± pink or pinkish KF as independent veins or in core of gray qtz vein ± bluish gray ± blue microcrystalline qtz veins often associated with disseminated Py in fragments of host rock and clasts (on the structure overlays SBX-I included in symbol). SBX-I "cuts" the EFZ and cut by the white and/or milky white qtz veins which look barren.
b. SBX-II (rare and seen in hole DDH 2007-03) in footwall of EFZ and/or adjacent to the late dike (Ap) with white-ash-gray qtz.

Disseminated Pyrite

In all holes observed fine-grained <= 0.1 mm Py (typical range from 1-5% and locally up to 8% by volume) - percentage depends from scale of primary porosity and permeability of original rock, pyrite generally is more abundant in I bxa, T bxa, amBp, and occurs in lower amounts in Bp, ApF lava flow, Ap late dike, and argillite. There is a variable Py color from yellowish and greenish.

Yellowish gold-shining Py observed in DDH-2007-06 - ideal Py cubes and twins up 2 mm in size.

Greenish fine-grained disseminated Py is typical for EFZ and qtz veins. Blebs of greenish fine-grained Py aggregates up 2.0 mm associated with Hem veinlets

Disseminated fine-grained Py commonly associated with green and salmon alteration, rare observed in qtz veins, however often associated in Cal veins (see log DDH 2007-06).

Qtz + Hem ± Cal ± Zeol veins and bxa, veinlets with oxidized Py. Hem occurs as dendrites in qtz veins, or “shadow veins”; Hem-rich thin veinlets with Py <=0.1 mm or blebs fine grained aggregate Py up to 1 mm.

Interpretation for mineralization fluids flows and margins for T° C changes by different style of Py, SBX, Hem occurrence:

Cal-disseminated Py rich

Hem-Py rich qtz veins

Area of SBX-I expansion

Interpretation and correlation between mapped and measured qtz veins on the surface (outcrops and trenches) and mineralization occurrence in core

E2. Geology Drill Logs

E3. Geotechnical logs

E4. Reflex EZ Shot Down Hole Survey Results

[redacted]

Appendix F:

Petrographic Rock Descriptions

PETROGRAPHIC REPORT ON 11 SAMPLES

Report for: Victor Jaramillo — Invoice 070759
Cons. Spire Ventures
2152 Douglas Road
Merritt, B.C. VIK 1B6 (250) 378-9740 — Oct. 9, 2007.

SUMMARY:

The 11 samples submitted appear to represent mafic volcanics and dike rocks that are mostly pre-mineral basalt (partly amygdaloidal, possibly originally mostly olivine? basalt, locally quartz-bearing?) in samples 5033-5038, andesite or too altered to be sure in 5039, 5040 and 5042, and late (unaltered, post-mineral?) andesitic dike in 5041, unaltered (olivine?) basalt in 5043. Relict altered mafic phenocrysts tentatively identified as olivine (?) are all entirely pseudomorphed by mafic minerals (biotite/hydrobiotite or possibly locally serpentine, or bowlingite?), carbonate and rare quartz, but the shapes of the pseudomorphs in some samples are typical of olivine, and local presence of fresh (unaltered) clinopyroxene also suggests the pseudomorphed mineral is not likely amphibole.

Alteration to phyllic/potassic (carbonate-clay?/sericite-chlorite/green biotite/hydrobiotite-quartz-pyrite-rutile or locally Kspar-biotite) is locally strong to intense, associated with narrow veinlets to locally networks or breccia matrix/amygdule fills of carbonate-quartz (locally chalcedonic in character)-minor chlorite, local pyrite (partly oxidized to limonite). Kspar is locally difficult to ascribe as secondary due to absence of obvious control along the veinlets or fractures, or uncertainty about the primary Kspar content of protoliths for these altered rocks. Capsule descriptions are as follows:

5033: moderately biotite/chlorite/”hydrobiotite”-carbonate-quartz altered (olivine?) basalt with relict porphyritic texture of scattered remnant plagioclase (labradorite?) and mafic sites in a trachytic-textured groundmass of plagioclase microlites, clinopyroxene and opaque oxides, possible minor Kspar. It is cut by narrow veinlets of carbonate (mainly calcite) and minor chalcedonic (?) quartz.

5034: appears to represent a strongly phyllic/potassic (carbonate-alkali feldspar-clay?/sericite-quartz-pyrite?-rutile?) altered basalt cut by narrow, banded veinlets of chalcedonic quartz and minor carbonate, trace hydrobiotite and pyrite.

5035: due to presence of definite quartz, and possible relict biotite (?) phenocrysts in addition to clay?/sericite altered plagioclase (?) and mafic sites, it is not certain what this rock represents. It is strongly altered to clay (?), clay?/sericite, quartz, chlorite, plus opaques that are likely pyrite (partly oxidized to limonite) and rutile, in association with chlorite-limonite and later quartz veinlets.

5036: quartz-bearing? olivine? basalt strongly altered to chlorite-calcite-quartz-clay?/sericite-serpentine?-limonite (after former Fe-Ti oxides). Amygdules and/or relict plagioclase sites are filled with calcite-chlorite-quartz (rare clay?/sericite) and are locally connected by thin, irregular, discontinuous carbonate veinlets.

5037: amygdular, flow-textured olivine (?) basalt strongly altered to Kspar?-chlorite/hydrobiotite-carbonate-quartz-clay?/sericite-minor pyrite-hematite-rutile? associated with abundant amygdules and rare breccia/vein networks filled with quartz-carbonate-minor chlorite.

5038: amygdular olivine (?) basalt strongly altered to carbonate-chlorite-quartz-clay?/sericite-hydrobiotite-pyrite-hematite-rutile?, associated with abundant amygdules and local micro-breccia/veinlet networks filled with quartz-carbonate-minor chlorite.

5039: appears to represent a mafic/intermediate rock (possibly originally andesite?) strongly altered to Kspar-clay?/sericite-chlorite/green biotite/"hydrobiotite"-carbonate-quartz-minor pyrite?-hematite-rutile? in association with carbonate-pyrite, rare quartz veinlets.

5040: uncertainty about the protolith for this Kspar-rich, strongly clay?/sericite-carbonate-quartz-chlorite/"hydrobiotite"-pyrite?-limonite-rutile? altered rock makes it unclear whether part or all the Kspar is secondary. It is not clearly controlled by the abundant, randomly oriented network of quartz-carbonate-clay?-pyrite? ±chlorite veinlets.

5041: fresh (unaltered) character of the oscillatory zoned plagioclase and hornblende phenocrysts, plus the abundant fresh ilmeno-magnetite in this andesite dike, suggests it is later than the bulk of the alteration seen in previous samples (5033-5040). This is supported by the minor alteration to clay?/sericite, chlorite and carbonate, relative lack of veining (only narrow, scattered carbonate) and gold value near zero.

5042: somewhat flow-textured, plagioclase-mafic mineral phyric volcanic rock possibly originally about alkali basalt/andesite in composition (based on primary Kspar in the groundmass), strongly altered to secondary biotite/hydrobiotite, carbonate, clay?/sericite in association with early, anastamose, chalcedonic quartz-minor carbonate veinlets (with envelopes of dolomitic/ankeritic carbonate and clay?/sericite), and later, cross-fiber, calcite/aragonite veinlets.

5043: (olivine?) basalt composed of small plagioclase and clinopyroxene crystals, plus scattered relict mafic (olivine?) phenocrysts now pseudomorphed by biotite or bowlingite (?), minor carbonate, rare quartz, in a groundmass of glass (?) and minute opaques, likely ilmenite/magnetite.

Detailed petrographic descriptions and photomicrographs are appended (on CD). If you have any questions regarding the petrography, please do not hesitate to contact me.

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5033: BASALT PARTLY ALTERED TO BIOTITE/"HYDROBIOTITE"-CARBONATE-QUARTZ, VEINED BY CARBONATE-QUARTZ

From DDH 3 at 39.23m, described as fairly fresh Todd basalt; hand specimen (stained offcut only remaining) shows a fine-grained, dark grey to black rock cut by narrow sub-planar veinlets <1 mm thick and spaced 1-2 cm apart. The rock is magnetic, and shows pale yellow stain for K-feldspar in the etched offcut, but no reaction to cold dilute HCl except in the veinlets and altered phenocryst sites. Modal mineralogy in thin section is approximately:

Plagioclase (labradorite?)	50%
Clinopyroxene (augite?)	25%
Biotite, chlorite, "hydrobiotite"	10%
Opaques (Fe-Ti oxides, mainly magnetite, hematite)	5%
K-feldspar? (groundmass only)	2-3%
Carbonate (mainly calcite, veinlets)	2-3%
Quartz (secondary, veinlets)	1-2%
Clay?/sericite (after plagioclase microlites)	1-2%

This sample is composed of about 10-15% each of relict plagioclase and relict mafic phenocrysts set in a fine-grained, trachytic (flow-textured) groundmass of plagioclase microlites, interstitial clinopyroxene and opaque oxides, possibly minor Kspar. Veinlets consist of laminations of carbonate and lesser quartz.

Remnant plagioclase phenocrysts have ragged subhedral (corroded, altered) to rarely euhedral, lath-like outlines up to about 2 mm long, locally with outer zones (70% of the crystal) containing abundant glass inclusions. They are about 50% replaced by carbonate (likely mostly calcite, ragged irregular subhedra to 0.25 mm) and lesser pale greenish brown "hydrobiotite (radiating rosette-like aggregates mostly <30 microns in diameter). Extinction on 010 up to about 30 degrees suggests a calcic composition for the plagioclase in the An50-60 (labradorite) range.

Relict mafic phenocryst sites have sub- to locally euhedral outlines mostly <1 mm (rarely to 1.5 mm) in diameter that are pseudomorphed by a variety of secondary minerals including carbonate (likely mainly calcite, subhedra <0.25 mm), secondary biotite (mainly greenish, rarely brownish, subhedral flakes to 0.3 mm) or "hydrobiotite" similar to that described above, and secondary quartz (subhedra to 0.2 mm), plus opaque oxides (mainly hematitic limonite as amorphous material or flakes to 40 microns in diameter). The shapes of the mafic relics are permissive of olivine (if olivine basalts are known in the area).

In the groundmass, plagioclase microlites are mostly euhedral, <0.15 mm long with flow-oriented texture; they are probably of similar composition to the phenocrysts although the maximum extinction on 010 observed was 22 degrees. The pale yellow stain in etched offcut may be explained by minor interstitial K-feldspar (<25 microns in size), or traces of clay?/sericite as minute flakes mostly <10 microns in size replacing plagioclase (or both). Small subhedral clinopyroxene crystals rarely over 35 microns long are mostly interstitial to plagioclase, and are clear, with large (~40 degree) extinction angle, suggestive of augite (?). They are commonly partly altered to fine-grained biotite/chlorite or "hydrobiotite" as described above, and are associated with minute opaque oxides as sub- to euhedral crystals mostly <20, but up to 40, microns in diameter; these are likely mostly magnetite or ilmeno-magnetite, partly oxidized to hematite.

In the veinlets, ribboned bands of carbonate mostly <0.1 mm thick vary from almost colourless (calcite) to brownish (either dolomite/ankerite, or possibly intermixed with minute flakes of "hydrobiotite"?). Quartz forms interlocking subhedral crystals rarely over 50 microns in size with local radiating extinction suggestive of chalcedony.

In summary, this appears to represent a moderately biotite/chlorite/"hydrobiotite"-carbonate-quartz altered basalt (possibly originally olivine basalt?) with a relict porphyritic texture of scattered remnant plagioclase (labradorite?) and mafic sites in a trachytic-textured groundmass of plagioclase microlites, clinopyroxene and opaque oxides, possible minor Kspar. It is cut by narrow veinlets of carbonate (mainly calcite) and minor, possibly chalcedonic, quartz.

5034: STRONGLY PHYLLIC/POTASSIC (CARBONATE-KSPAR-CLAY?/SERICITE-QUARTZ-PYRITE?-RUTILE?) ALTERED BASALT, CHALCEDONIC QUARTZ-CARBONATE VEINS

From DDH 3 at 44.33m, described as same rock as 5033 but altered to beige colour, with ~1 mm quartz veinlets; etched offcut indicates that K-spar is more abundant, possibly forming a pervasive overprint on the rock, which is only slightly magnetic, and shows slow reaction to cold dilute HCl only in the envelope of the banded, chalcedonic-looking, 3 mm thick vein. Modal mineralogy in thin section is approximately:

Carbonate (mainly dolomitic?)	35%
Plagioclase (relict)	30%
K-feldspar (largely secondary?)	20%
Clay?/sericite (after feldspar)	5%
Quartz (secondary, vein, partly chalcedonic)	5%
Opaque (pyrite?)	2-3%
(rutile?)	2-3%
"Hydrobiotite"	<1%

This sample is barely recognizable as altered basalt, in which former plagioclase (?) phenocrysts are altered to carbonate and quartz, and relict mafic sites with a distribution similar to that of sample 5033 are mainly replaced by opaques (pyrite?), set in an aphanitic groundmass altered to carbonate, alkali feldspar, and minute opaques.

Relict plagioclase (?) sites with mainly subhedral outlines up to 1.5 mm across are pseudomorphed by carbonate (ragged interlocking subhedra up to 0.4 mm in diameter) and quartz (interlocking subhedra mostly <0.2 mm long), with traces of minute opaques that may be rutile (?). Carbonate varies from almost clear to locally brownish and could be dolomite and minor ankerite (?). Rarely, former plagioclase phenocrysts are replaced by carbonate and what appears to be alkali feldspar similar to that in the groundmass.

Relict mafic (?) sites have mainly euhedral outlines <1 mm in size and are pseudomorphed by subhedral interlocking crystals <0.25 mm in size of carbonate (possibly dolomite and slightly more brownish ankerite as above) and local cubic opaques <0.5 mm in size that are likely mostly pyrite (?).

In the groundmass, carbonate occurs as interlocking subhedral crystals mostly <0.1 mm in size, but commonly clumped together in aggregates 0.25 mm across. Most of this is likely dolomite to judge by the slow steady reaction in the offcut (unless the etching process with HF has slowed the ability of calcite to react). It is possible that much of the carbonate represents former mafic (pyroxene) crystals, with replacement spreading to adjacent feldspar. The remaining interstitial alkali feldspar is partly twinned and looks like plagioclase (albite?), although it is difficult to be sure if it is polysynthetic twinning or merely small-scale Carlsbad twinning in K-feldspar. Most of the crystals of alkali feldspar are ragged and subhedral with a secondary appearance, but there is no discernible relief difference between them, so it is not possible to distinguish between these two alkali feldspars reliably; the estimates given above are thus largely based on the colour of the etched offcut. All feldspar is slightly to partly replaced by minute (15-20 micron) flakes of clay?/sericite. Former opaque oxides (ilmeno-magnetite?) are largely replaced by 20-30 micron sized aggregates of minute, mostly <2-3 micron, crystals of dark brown to opaque material that is likely rutile (?).

In the veins, quartz mostly forms sub- to euhedral, locally bladed crystals with comb texture, clouded by minute dust-like inclusions that make it look like feldspar (but no feldspar is indicated in the etched and stained offcut). In some veins, the quartz is banded and extremely fine-grained (5-10 microns), giving it a chalcedonic appearance. In these areas it is locally mixed with, or flanked by, selvages of carbonate (subhedra <0.1 mm), or contains partings down the sides or center of clear to brownish carbonate (dolomite/ankerite?) and minor brownish "hydrobiotite" or opaque (pyrite?).

In summary, this appears to represent a strongly phyllic/potassic (carbonate-alkali feldspar-clay?/sericite-quartz-pyrite?-rutile?) altered basalt cut by narrow, banded veinlets of chalcedonic quartz and minor carbonate, trace hydrobiotite and pyrite.

5035: ROCK OF UNCERTAIN DERIVATION ALTERED TO CLAY?, SERICITE, QUARTZ, CHLORITE, PYRITE?-LIMONITE-RUTILE?, CUT BY CHLORITE AND QUARTZ VEINS

From DDH 4 at 105.85m, described as mottled pink-green alteration of amygdaloidal (basalt?), possibly K-feldspathized?; etched offcut shows a fine-grained, pinkish-buff rock cut by swarms of microveinlets of dark green mineral surrounded by envelopes of cream-coloured alteration. The rock is not magnetic, and shows no reaction to cold dilute HCl, but there is patchy pale yellow stain (too soft for K-feldspar?) in the etched offcut. Modal mineralogy in thin section is (tentatively):

Clay?/sericite	35%
Clay (?)	30%
Quartz (mainly secondary?)	15%
K-bearing clay (?)	10%
Chlorite	5%
Opaques (mainly hematitic limonite?)	2-3%
(pyrite?)	1-2%
(rutile?)	1%

This is a very fine-grained, strongly altered rock which would be best analysed by X-ray diffraction (XRD) methods in conjunction with petrography; optical identifications made here are tentative. Little trace remains of the original texture of the rock apart from the amygdules, which are filled with extremely fine-grained clay (?), and scattered relict mafic (?) phenocrysts that are reminiscent of the possible olivine (?) sites seen in samples 5033/34.

Possible relict mafic phenocryst sites have mainly euhedral outlines <0.75 mm in diameter, with angular shapes that are suggestive of former olivine, pyroxene or amphibole, pseudomorphed by fine-grained sericite, chlorite and quartz all mostly <20 microns in size, with narrow rims of opaque (mainly amorphous limonite). However, rare brown (limonitic) relicts have a lamellar internal texture suggestive of former biotite (?), and rare euhedral quartz phenocrysts/shards are <0.6 mm in diameter. Both these minerals are indicative of a more felsic rock than olivine-bearing basalt.

About 20-30% of the sample consists of irregular-shaped amygdule (?) filled with minute (mainly <5 micron) flakes of clay (?) that are brownish in thin section compared to the adjacent mainly colourless sericite or clay?/sericite (and have lower birefringence). Part of this clay (?) is likely stained yellow (K-bearing?) in etched offcut (these areas are much too soft to be K-feldspar). In places the clay (?) alteration spreads out to apparently replace most of the sample, forming a matrix to "islands" of clay?/sericite altered rock. In these "islands", which have irregular-shaped outlines commonly <0.25, but locally up to about 3 mm, subhedral flakes of sericite or clay?/sericite (could be illite?) are mostly <25 microns in diameter, with reticulate to random orientations. They might possibly represent pseudomorphs of former plagioclase (?) shards or crystals. In some of the larger patches, sericite is mixed with chlorite of similar size that appears to take the place of clay (?) within the patch but is also associated with the microveinlets that traverse the patch.

In the microveinlets, which are highly irregular/anastamose to sub-planar, and mostly <0.5 mm thick, chlorite forms dark olive-green, but only weakly pleochroic, subhedral flakes mostly 25 microns in diameter with length-slow, green anomalous birefringence, indicative of Fe:Fe+Mg, or F:M, ratio around 0.6 (?). Along the microveinlets, opaque that appears to be mostly amorphous limonite (possibly hematite?) is common associated with the chlorite, and this limonite spreads out from central opaques that are likely pyrite (?), as subhedral crystals/aggregates to 0.25 mm. However, most pyrite (?), forming aggregates to 1 mm of euhedra <0.5 mm, is associated with quartz veinlets that are up to 0.75 mm thick, composed of locally comb-textured sub/euhedral crystals mostly <0.35 mm long that appear to be later than (cut) the chlorite microveinlets. Concentrations of minute opaques along the selvages of the quartz veins are likely rutile/hematite, also common in wallrock.

In summary, due to presence of definite quartz, and possible relict biotite (?) phenocrysts in addition to clay?/sericite altered plagioclase and mafic sites, it is not certain what this rock represents. It is strongly altered to clay (?), clay?/sericite, quartz, chlorite, plus opaques that are likely pyrite (partly oxidized to limonite) and rutile, in association with chlorite-limonite and later quartz veinlets.

5036: QUARTZ-BEARING? RELICT (SERPENTINIZED?) OLIVINE? BASALT WITH CALCITE CHLORITE-QUARTZ AMYGDULES/RELICT PLAGIOCLASE SITES IN CLAY?/SERICITE-CHLORITE ALTERED MICROLITIC GROUNDMASS; CALCITE-CHLORITE-QUARTZ VEINS

From DDH 9 at 32.1m, described as amygdaloidal (basalt?) with celadonite (?) in vesicles; offcut shows a rock similar in texture to 5035, with 20-25% irregular to locally subhedral shaped patches of pale to bright green mineral (possibly in part representing relict plagioclase sites), 10-15% rusty (limonitic) euhedral mafic sites in a pale grey to purplish-brown (hematitic) groundmass, cut by minor white carbonate or quartz veinlets. The rock is weakly magnetic, shows minor reaction to cold dilute HCl (also in veins), and no stain for K-feldspar in the etched offcut. Modal mineralogy in thin section is approximately:

Relict plagioclase (microlites)	35%
Chlorite	25%
Carbonate (mainly calcite?)	10-12%
Quartz (mainly secondary, rare primary)	10%
Clay?/sericite	10%
Serpentine (?)	2-3%
Opaque (hematitic limonite?)	2-3%
(relict magnetite/ilmenite?)	1-2%
(rutile?)	1-2%

This sample consists mainly of about 35% amygdules/relict plagioclase sites filled with carbonate-chlorite-quartz, 10% small euhedral serpentine-limonite altered mafic (olivine?) crystals, and rare quartz phenocrysts, in a groundmass of plagioclase microlites (partly sericitized) and interstitial chlorite and opaque oxides. The microlites are mostly <0.15 mm long and have a locally trachytic (flow-textured) habit; clay?/sericite replacing them forms minute flakes mostly <25 microns in size. Chlorite interstitial to them forms flakes mostly <15 microns in diameter with random orientations. Small, irregular patches of carbonate mostly <0.1 mm may reflect the sites of former clinopyroxene (?) crystals. Opaques have mostly euhedral outlines <50 microns in size and likely represent Fe-Ti oxides such as ilmenite, magnetite or ilmeno-magnetite (partly altered to hematite).

However, near the amygdules, the opaques are generally altered to minute crystals of what may be rutile (?).

What appear to be amygdule fillings/relict plagioclase sites have, respectively, irregular outlines up to 2.5 mm across (locally interconnected by the veinlets), or subhedral shapes mostly <1.5 mm across. They are mostly filled with carbonate (likely mainly calcite), forming interlocking sub- to anhedral crystals up to slightly over 1 mm in diameter. Much of the green colour in these sites comes from chlorite, which is intimately mixed with carbonate, but rarely a pale green, flaky mineral with high, length-slow birefringence (like celadonite?) forms flakes <25 microns in size with a botryoidal habit. Chlorite (or serpentine?) forms subhedral flakes mostly <0.12 mm in diameter, with optical properties (weakly pleochroic from pale green to virtually colourless, first-order bluish grey, length-slow birefringence) indicative of F:M perhaps around 0.5?). Rims of secondary quartz up to 0.5 mm thick, forming subhedral cockade-textured crystals mostly <0.1 mm long, are common.

Relict mafic sites have euhedral outlines mostly <1.5 mm long with pointed terminations strongly suggestive of former olivine (?) crystals. They are pseudomorphed by what appears to be fine-grained (mostly <25 micron), commonly cross-fiber, serpentine (?), with rims and a reticulate fracture network of limonite that may reflect oxidation of former secondary magnetite.

Quartz phenocrysts or amygdules (?) are rare (<<5%) and form somewhat corroded-looking (resorbed) crystals with subhedral, rounded outlines up to 2.5 mm across. The crystals are fractured, with local sutured sub-domains, and are rimmed by quartz-carbonate-chlorite like the amygdules.

In summary, this appears to represent (possibly quartz-bearing?) olivine basalt that is strongly altered to chlorite-carbonate-quartz-clay?/sericite-serpentine?-limonite (after former Fe-Ti oxides). Amygdules and/or relict plagioclase sites are filled with calcite-chlorite-quartz (rare clay?/sericite) and are locally connected by thin, irregular, discontinuous calcite-chlorite-quartz veinlets.

5037: AMYGDULAR OLIVINE? BASALT ALTERED TO KSPAR?-CHLORITE-CARBONATE-QUARTZ-CLAY?/SERICITE-MINOR PYRITE?-HEMATITE-RUTILE?

From DDH 9 at 34.69m, described as greenish alteration; etched offcut shows pale greenish-buff, fine-grained altered amygdaloidal basaltic rock (?) containing pale green relict plagioclase and lesser, smaller dark green relict mafic crystals, plus common irregularly shaped, white to pale greenish amygdules. The rock is weakly magnetic, shows minor reaction to cold dilute HCl in the amygdules, and no extensive yellow stain for K-feldspar in the groundmass. Modal mineralogy in thin section is approximately:

K-feldspar (groundmass, secondary?)	25%
Chlorite/"hydrobiotite"	25%
Quartz (secondary)	15%
Carbonate (calcite, dolomite/ankerite?)	15%
Clay?/sericite (after feldspar)	15%
Opaque (pyrite?)	1-2%
(rutile?)	1-2%
(hematitic limonite?)	1-2%

This sample is composed of about 25% amygdules filled with quartz, carbonate and minor chlorite (some of these may represent former plagioclase sites?), and 10-15% small relict mafic sites mainly replaced by chlorite/hydrobiotite, in a fine-grained weakly flow-textured groundmass of feldspar microlites largely altered to K-feldspar and clay?/sericite, plus interstitial chlorite and opaques.

Amygdules have irregular, but commonly elongate, somewhat aligned shapes up to about 1 cm long that are mainly sub-parallel to the trachytic alignment in the groundmass. Typically the amygdules consist of variable mixtures of quartz and carbonate with local narrow discontinuous rims of chlorite. Quartz forms mainly euhedral, doubly terminated crystals up to 0.5 mm long with cockade texture (perpendicular to amygdule walls), or fine-grained (chalcedonic-looking) aggregates of sub/anhedra mostly <25 microns in size. Carbonate forms subhedral crystals of similar size or locally up to 1.5 mm that vary from clear (calcite) at the cores to distinctly brownish (mainly around the amygdule rims, possibly indicating higher-relief dolomite/ankerite?) or greenish (possibly intimately intermixed with chlorite?). Where chlorite is distinguishable it forms subhedral flakes mostly <50 microns in diameter oriented parallel to the rim, in places mixed with similar-sized clay?/sericite flakes, and locally succeeded outward by radially oriented flakes of slightly darker green chlorite/hydrobiotite (distinguished by higher birefringence; both are length-slow).

Relict mafic sites have mainly euhedral to subhedral outlines <1.5 mm long, commonly with pointed terminations that are strongly suggestive of former olivine (?) crystals. They are pseudomorphed by a pale green mineral with moderate, length-slow birefringence that is likely either hydrobiotite or possibly serpentine (?), with reticulate/cross-fiber internal textures similar to those in relict mafic sites of the previous sample. Minor opaque oxides are mostly hematitic limonite (possibly after secondary magnetite?).

In the groundmass, feldspar microlites are mostly <0.1, but locally up to 0.2 mm long and according to the etched slab are likely mostly Kspar (possibly secondary since it is unlikely a rock as basic as olivine basalt would contain so much primary Kspar). The crystals are generally partly replaced by minute flakes of clay?/sericite <20 microns in size. Chlorite or hydrobiotite (low and moderate birefringence respectively), forming minute randomly oriented flakes <15 microns in size, and abundant opaques also mostly <15 microns in size that may be mostly hematite and rutile (?), fill interstices between feldspar microlites. Scattered clots up to 1 mm long of coarser-grained opaques (sub/euhedral pyrite?) are most commonly associated with the amygdules and local breccia/vein networks that spread from them.

In summary, this appears to be amygdular, flow-textured olivine (?) basalt strongly altered to Kspar?-chlorite/hydrobiotite-carbonate-quartz-clay?/sericite-minor pyrite-hematite-rutile? associated with abundant amygdules and rare breccia/vein networks filled with quartz-carbonate-minor chlorite.

5038: AMYGDULAR OLIVINE? BASALT ALTERED TO CARBONATE-CHLORITE-QUARTZ-CLAY?/SERICITE-HYDROBIOTITE-PYRITE?-HEMATITE-RUTILE

From DDH 9 at 52.2m, described as mottled pink-green pseudo-breccia in amygdaloidal (basalt?); etched offcut shows finely porphyritic/amygdaloidal rock in which the greenish amygdules or relict phenocrysts are partly joined by short, discontinuous veinlets or microveinlets and there is abundant disseminated pyrite. The rock is slightly magnetic, shows local slow steady reaction to cold dilute HCl, and no stain for K-feldspar in the etched offcut. Modal mineralogy in polished thin section is approximately:

Carbonate (calcite, dolomite/ankerite?)	35%
Chlorite	20%
Quartz (secondary)	15%
Clay?/sericite (after feldspar)	15%
“Hydrobiotite”	5%
Pyrite	5%
Hematitic limonite	2-3%
Rutile?	1-2%

This sample is composed of about 20% amygdules (grading into veinlet/breccia network) filled with quartz, carbonate and minor chlorite (some of these may represent former plagioclase sites?), and 10% small relict mafic sites mainly replaced by “hydrobiotite”, in a fine-grained groundmass of feldspar microlites replaced by clay?/sericite, plus interstitial carbonate, chlorite and opaques.

Amygdules have irregular, amoeboid shapes up to about 5 mm across that grade locally into a discontinuous network of veinlets filled with the same minerals, typically variable mixtures of quartz and carbonate with local narrow discontinuous rims of chlorite. Quartz forms mainly euhedral, locally doubly terminated crystals up to 0.35 mm long with cockade/comb texture (perpendicular to amygdule/vein walls), or rarely fine-grained (“chalcedonic”) aggregates of sub/anhedra mostly <50 microns in size. Carbonate forms subhedral to fibrous crystals up to 3 mm that vary from clear (calcite or dolomite?) at the cores to distinctly brownish (possibly higher-relief dolomite/ankerite?) or greenish (possibly intimately intermixed with chlorite?). Chlorite forms subhedral flakes mostly <75 microns in diameter locally oriented perpendicular to the rim, with optical properties (weak green pleochroism, greyish-green length-slow birefringence) suggestive of F:M around 0.5 (?). It is locally succeeded outward by patches of chlorite as minute (<15 micron), random, very pale green flakes.

Relict mafic sites have mainly subhedral (corroded?) outlines <1.2 mm long, mainly lacking pointed terminations suggestive of former olivine (?) crystals, but still most likely of similar origin to the crystals in previous samples. They are pseudomorphed by a pale green mineral with moderate, length-slow birefringence that is likely hydrobiotite (birefringence too high for serpentine). Minor opaque oxides are mostly hematitic limonite (possibly after secondary magnetite?).

In the groundmass, feldspar microlites are mostly <0.1, but locally up to 0.3 mm long and almost completely replaced by minute flakes of clay?/sericite mostly <15 microns in size. Interstices between feldspar microlites are mainly filled with carbonate and opaque oxides, or locally lesser chlorite. Chlorite or hydrobiotite (low and moderate birefringence respectively), forms minute randomly oriented flakes <15 microns in size, and abundant opaques also mostly <10 microns in size, are mostly hematite and rutile (too fine to identify with certainty by optical means). Abundant crystals or clots of sub/euhedral pyrite are mostly <0.5 mm in size and are commonly loosely associated with the amygdules and local breccia/vein networks that spread from them.

In summary, this appears to be amygdular olivine (?) basalt strongly altered to carbonate-chlorite-quartz-clay?/sericite-hydrobiotite-pyrite-hematite-rutile?, associated with abundant amygdules and local micro-breccia/veinlet networks filled with quartz-carbonate-minor chlorite.

5039: FINE PORPHRYITIC ANDESITE? STRONGLY ALTERED TO KSPAR-CLAY?/SERICITE “CHLORITE”-CARBONATE-QUARTZ-PYRITE?-HEMATITE/RUTILE?

From DDH 19 at 69.38m, described as finely feldspar phyric andesite, unaltered green-grey; etched offcut shows abundant very small white plagioclase and scattered dark green relict mafic crystals in an aphanitic groundmass that stains intensely yellow for K-feldspar. It is hard to believe this is all primary Kspar, especially since there are small microveinlets of various types cutting the sample. The rock is very slightly magnetic, and shows minor slow reaction to cold dilute HCl. Modal mineralogy in thin section is approximately:

K-feldspar (possibly largely secondary?)	35%
Clay?/sericite (after plagioclase)	25%
Chlorite/green (ferriferous) biotite/”hydrobiotite”	25%
Carbonate (calcite, dolomite?)	5%
Quartz (mainly secondary)	5%

Opaque (rutile, hematite?)	2-3%
(pyrite?)	1-2%

This sample consists of about 30-35% small (<1 mm) relict plagioclase (?) feldspar and lesser (15%?) similar sized relict mafic phenocrysts in a microlitic, strongly altered groundmass. Narrow veinlets of carbonate and minor opaque (pyrite?), local quartz are associated with pyritization of the adjacent wallrock.

Relict feldspar phenocrysts have mainly euhedral outlines rarely over 0.9 mm long, with a locally somewhat trachytic texture. They are pseudomorphed by very fine-grained (mostly <20 micron), randomly oriented subhedral flakes of clay?/sericite that apparently preserves former polysynthetic twinning, suggesting that they were originally plagioclase. In places, portions of the crystals are also replaced by minute crystals <20 microns in diameter of what appears to be secondary K-feldspar (similar in appearance to adjacent groundmass feldspar, which negative relief compared to adjacent quartz; strong yellow stain in etched offcut).

Relict mafic phenocrysts have mainly sub- to euhedral outlines up to about 1 mm in size that are pseudomorphed by variable mixtures of carbonate, chlorite/green biotite/"hydrobiotite" and quartz, rare opaques (mainly pyrite?). Carbonate, possibly mostly calcite and dolomite (?), forms interlocking subhedral crystals mainly <0.25 mm in diameter. Green, variably pleochroic chloritic and always length-slow minerals as subhedral flakes mostly <50 microns in size range from those with low birefringence through those with moderate birefringence to those with similar moderate birefringence and brownish colour but no pleochroism (respectively chlorite with F:M perhaps 0.5-0.6, green ferriferous biotite, and "hydrobiotite, or Fe-rich chlorite, respectively). Quartz is relatively minor, forming subhedra mostly<0.4 mm long. Opaque that is likely mostly pyrite forms small subhedra mostly <0.1 mm in size.

In the groundmass, small feldspar microlites with euhedral but corroded outlines rarely over 75 microns long have a fuzzy, altered appearance that suggests they are entirely replaced by Kspar (as indicated by brilliant yellow stain in the etched offcut). Lath-like euhedral mafic microlites up to 0.15 mm long are pseudomorphed by subhedral flakes to 0.15 mm of green biotite (pale green pleochroism but length-slow, moderate birefringence). Interstices are filled with a chlorite-like mineral that has similar moderate birefringence but darker olive-green to brownish colour and relatively little pleochroism ("hydrobiotite" or Fe-rich chlorite), forming flakes <15 microns in size, plus similar-sized opaques that are likely mostly rutile and hematite after former ilmeno-magnetite. Small patches (<0.15 mm across) of quartz as interlocking subhedra mostly <40 microns in size are likely secondary, especially since they are locally loosely interconnected along microveinlets. Most veinlets (up to 0.6 mm thick), however, are filled with carbonate as subhedra to 0.25 mm, and lesser opaque (likely pyrite) as sub/euhedral crystals/aggregates to 0.15 mm.

In summary, this sample appears to represent a mafic/intermediate rock (possibly originally andesite?) strongly altered to Kspar-clay?/sericite-chlorite/green biotite/"hydrobiotite"-carbonate-quartz-minor pyrite?-hematite-rutile? in association with carbonate-pyrite, rare quartz veinlets.

5040: ROCK OF UNCERTAIN DERIVATION COMPOSED OF KSPAR LATHS, ALTERED TO CLAY?/SERICITE-CARBONATE-QUARTZ-CHLORITE/"HYDROBIOTITE"-PYRITE? IN ASSOCIATION WITH NETWORK OF QUARTZ-CARBONATE-CLAY? VEINLETS

From DDH 19 at 79.93m, described as pinkish alteration, possibly K-feldspar; etched offcut shows pale greenish grey, fine-grained rock that stains intensely yellow for K-feldspar, and the texture of the sample looks altered, suggesting that the Kspar could be secondary (?). The rock is weakly magnetic, and shows no reaction to cold dilute HCl, although this might in part be due to the etching process, which uses strong HF acid. Modal mineralogy in thin section is approximately:

K-feldspar (primary or secondary?)	50%
Clay?/sericite	15%
Carbonate (mainly dolomite/ankerite?)	15%
Quartz (mainly secondary)	10%
Chlorite/ "hydrobiotite"	7%
Opaque (mainly pyrite?)	1-2%
(limonite)	<1%
(rutile?)	<1%

This sample is made up mainly of fine-grained, somewhat trachytic-textured laths of alkali feldspar (mainly K-feldspar according to the intensity of yellow stain in the etched offcut) with lesser, small relict mafic crystals mostly replaced by chlorite/"hydrobiotite", and cut by closely-spaced swarms of microveinlets of carbonate, quartz or sericite, with which minor pyrite/limonite is associated.

K-feldspar mostly forms euhedral (but somewhat corroded) laths <0.2 mm long, with simple (Carlsbad?) twinning. Rarely, sericitized feldspar laths up to 0.5 mm long suggest former small phenocrysts. The corroded look is largely due to partial alteration to clay?/sericite as minute random flakes mostly <15 microns in size. It is difficult to be sure of the origin of this alkali feldspar; the abundance, overall appearance (euhedral, trachytic laths) and lack of obvious control by the veinlet network suggests it is mainly primary. However, it is possible that primary plagioclase laths have been entirely converted to Kspar; it would be necessary to examine the protolith for this altered rock at some distance removed from the veinlets to see if it was still Kspar-rich. Minute opaques (mostly <10 microns) found throughout the sample are most likely mainly rutile (?) and limonite or hematite.

Mafic relics are difficult to recognize because they are so pale coloured, but have typically rounded subhedral to euhedral outlines mostly <0.25 (rarely to 0.4) mm pseudomorphed by fine-grained (<35 micron) chlorite or "hydrobiotite" (very weak to no pleochroism, faintly brownish green colour, moderate, length-slow birefringence) or locally carbonate (dolomite/ankerite, subhedra <50 microns) or quartz (subhedra <35 microns). It is not possible to determine their original character.

Veinlets are abundant, mostly <0.25 but up to 0.5 mm thick, forming a crackle network or locally almost breccia matrix that makes up perhaps 10-15% of the sample. Fill varies from almost pure quartz (granular subhedra up to 0.15 mm, or microscopic, "chalcedonic" subhedra mostly <25 microns that are difficult to tell apart from clay?/sericite of similar size) to carbonate (possibly mostly dolomite/ankerite since no reaction observed to HCl; subhedra to 0.25 mm long) or less commonly clay?/sericite (subhedral flakes mostly <25 microns with low, first-order grey-white birefringence suggestive of clay?), rarely chlorite/hydrobiotite as flakes <50 microns in size. Clots of opaques, most likely mainly pyrite (?) as sub/euhedral crystals <0.1 mm in diameter that are locally oxidized to limonite, are most commonly associated with mixed quartz-carbonate-clay? veinlets.

In summary, uncertainty about the protolith for this Kspar-rich, strongly clay?/sericite-carbonate-quartz-chlorite/"hydrobiotite"-pyrite?-limonite-rutile? altered rock makes it unclear whether part or all the Kspar is secondary. It is not clearly controlled by the abundant, randomly oriented network of quartz-carbonate-clay?-pyrite? -chlorite veinlets.

5041: PLAGIOCLASE-HORNBLENDE PORPHYRITIC, SLIGHTLY CLAY?/SERICITE-CHLORITE-CARBONATE ALTERED ANDESITE DIKE

From DDH 9 at 88.62 m, described as "andesite" dike rock; etched offcut shows dark grey, fine-grained, plagioclase- and lesser small mafic-phyric rock with <1 cm diameter irregular xenoliths or heterolithic clasts in a groundmass that stains pale yellow for K-feldspar. The rock is magnetic, and shows trace reaction to cold dilute HCl in one of the (more mafic) xenoliths. Modal mineralogy in thin section is approximately:

Plagioclase (andesine?)	55%
K-feldspar (primary)	10%
Amphibole (hornblende?)	10%
Clay?/sericite (after feldspar)	10%
Chlorite	7-8%
Carbonate (calcite and dolomite?)	2-3%
Opaque (mainly ilmenite/magnetite?)	2-3%
(hematite)	<1%
Quartz (primary, minor secondary)	1-2%
Apatite	<1%

This sample is distinctly different from the previous samples in containing relatively fresh (unaltered) phenocrysts of plagioclase (35%, 1-2 mm) and amphibole (10%, 1-2 mm), plus rare 1 mm carbonate amygdules (?) in a groundmass of plagioclase microlites, interstitial K-feldspar and chlorite. Microveinlets are of carbonate only.

Plagioclase phenocrysts have mainly euhedral outlines up to almost 2 mm long, locally with well-developed oscillatory compositional zoning that indicates that the observed composition (andesine, An40-45, based on extinction Y^010-25 degrees, Z^001=30 degrees) is primary. The crystals are mainly slightly to locally strongly (10-60%) replaced by fine-grained (10-30 micron) subhedral, randomly oriented flakes of clay?/sericite, locally mixed with carbonate that may be dolomitic since it does not appear to react to cold dilute HCl (although the offcut has been strongly etched, and this may affect the reactivity). Carbonate is generally associated with microfractures.

Amphibole phenocrysts have mainly euhedral outlines up to 2.5 mm long, with dark olive green pleochroism and extinction angle around 15 degrees, suggestive of hornblende (?). They are generally only slightly altered to carbonate (dolomite?) along microfractures and rims, but locally where near or crossed by veinlets of carbonate, alteration is more extensive.

In the groundmass, small (mainly <0.35 mm long) euhedral laths of plagioclase, slightly altered to clay?/sericite, are set in a matrix of K-feldspar (interlocking subhedra mostly <25 microns in size) and minor chlorite (subhedral flakes mostly <15 microns in size) plus common opaque Fe-Ti oxides (magnetite, ilmeno-magnetite, partly oxidized to hematite?) that range in size from skeletal, resorbed-looking microphenocrysts up to 0.7 mm long down to minute crystals <10 microns in size. Accessory quartz forms sub- to anhedral crystals mostly <0.3 mm in diameter that appear likely to be mostly primary (although rarely quartz of similar size occurs with radiating fibrous carbonate crystals up to 0.5 mm long, likely calcite or aragonite, in the possible amygdules). Traces of accessory apatite form euhedral prisms up to 0.1 mm long.

Clasts or xenoliths are composed of variable mixtures of plagioclase and hornblende, interstitial Kspar with more hypidiomorphic-equigranular texture (i.e. similar composition to the host rock but more plutonic in character)

In summary, the fresh (unaltered) character of oscillatory zoned plagioclase and hornblende phenocrysts, plus the abundant fresh ilmeno-magnetite in this andesite dike, suggests it is later than the bulk of the alteration seen in previous samples (5033-5040). This is supported by the minor alteration to clay?/sericite, chlorite and carbonate, relative lack of veining (only narrow, scattered carbonate) and gold value near zero in this andesitic dike rock.

5042: MAFIC (PLAGIOCLASE-MAFIC MINERAL PHYRIC) VOLCANIC ALTERED TO BIOTITE-CABONATE-CLAY?/SERICITE IN ASSOCIATION WITH QUARTZ-CARBONATE VEINS; LATE CROSS-FIBER CALCITE/ARAGONITE VEINS

From DDH 13 at 22.65m, described as fine-grained altered volcanic; etched offcut shows dark purplish-grey rock cut by abundant swarms of narrow, anastamosing veinlets with bleached envelopes; note that only the background rock (in "islands" between the veinlets) stains for K-feldspar. The rock is strongly magnetic, and shows minor reaction to cold dilute HCl (mainly along some of the veinlets). Modal mineralogy in thin section is approximately:

Plagioclase (albitized, sericite-carbonate altered)	35%
Biotite/hydrobiotite (secondary)	25%
Carbonate (calcite, lesser dolomite/ankerite?)	20%
K-feldspar (relict primary?)	10%
Clay?/sericite (after feldspars)	5%
Opaque (Fe-Ti oxides?)	5%

This sample is composed of 15-20% somewhat altered plagioclase and lesser (10-15%) strongly altered, relict mafic phenocrysts in a fine-grained, partly trachytic-textured groundmass; the rock is disrupted along narrow anastamosing veinlets of chalcedonic quartz or quartz-carbonate with irregular envelopes of "bleaching" or carbonate-minor clay?/sericite alteration, and later fibrous carbonate.

Plagioclase phenocrysts have mainly euhedral, lath-shaped outlines up to 1 mm long (locally radially glomeratic to 1.5 mm). The primary composition is no longer determinable due to alteration to small spots, mostly <50 microns across, of carbonate and clay?/sericite (subhedra mostly <25 microns in size) that largely destroys the twinning (and any zoning if it was originally present); it may now be composed of secondary albite/oligoclase (?).

Former mafic crystals have ragged euhedral outlines mostly <1 mm long (locally glomeratic) that are pseudomorphed by fine-grained brownish-green secondary biotite/hydrobiotite as matted subhedral flakes mostly <25 microns in size (but commonly with semi-continuous optically to 0.12 mm), and opaque Fe-Ti oxides (particularly along rims and fractures). The shapes are not diagnostic, but possibly suggest amphibole (?) rather than olivine.

In the groundmass, small plagioclase microlites (mainly altered as for phenocrysts) are partly aligned and mostly <0.3 mm long (there is some gradation to phenocryst size, in a seriate texture). Away from the network of veinlets, interstices between the microlites are filled by abundant brown biotite/minor carbonate mixtures that likely represent former small mafic crystals (somewhat similar to the clinopyroxene in the basalt samples) and K-feldspar (interlocking subhedra mostly <20 microns in size; hard to identify except by the stain in etched offcut).

Veinlets (anastamose/irregular to sub-planar, the latter up to almost 1 mm thick) appear to consist of an earlier set composed of microcrystalline ("chalcedonic") quartz as interlocking anhedra mostly <10 microns in size, intermixed (especially towards the margins) with carbonate as interlocking, brownish (dolomite/ankerite?) subhedra mostly <20 microns in diameter, and a later set composed mainly of cross-fibrous carbonate (likely calcite or aragonite to judge by the reaction to HCl in the offcut). Around the earlier set, "bleaching" or alteration to fine-grained (<25 micron) carbonate, likely dolomite or ankerite to judge by the brownish colour and lack of reaction to cold dilute HCl in etched offcut, and minor clay?/sericite, is prominent for up to about 1.5 mm from the vein margins.

In summary, this appears to represent a somewhat flow-textured, plagioclase-mafic mineral phyric volcanic rock possibly originally about alkali basalt/andesite in composition (based on primary Kspar in the groundmass), strongly altered to secondary biotite/hydrobiotite, carbonate, clay?/sericite in association with early, anastamose, chalcedonic quartz-minor carbonate veinlets (with envelopes of dolomitic/ankeritic carbonate and clay?/sericite), and later, cross-fiber, calcite/aragonite? veinlets.

5043: OLIVINE (?) BASALT: RELICT MAFICS PSEUDOMORPHED BY BOWLINGITE?-CARBONATE, FRESH LABRADORITE-CLINOPYROXENE CRYSTALS IN GLASSY MATRIX

From surface outcrop, described as black magnetic footwall basalt with crystalline groundmass; etched offcut shows scattered small (<1 mm) plagioclase and lesser mafic crystals in what appears to be a phaneritic groundmass. The rock shows no reaction to cold dilute HCl, and only pale yellow stain (for K-feldspar or for?) in the etched offcut. Modal mineralogy in thin section is approximately:

Plagioclase (labradorite?)	40%
Clinopyroxene (augite?)	20%
Glass (?)	20%
Relict mafic (now biotite or bowlingite?)	15%
Opaque (magnetite, ilmenite?)	3-5%
Carbonate (dolomite/ankerite?)	<1%
Quartz (secondary)	trace

This sample is composed of small, seriate-textured plagioclase (lesser clinopyroxene) and scattered brown relict mafic phenocrysts in an almost opaque matrix that is likely largely glass. The seriate nature (progressive decrease in size) of the plagioclase and clinopyroxene imparts the impression of a crystalline groundmass.

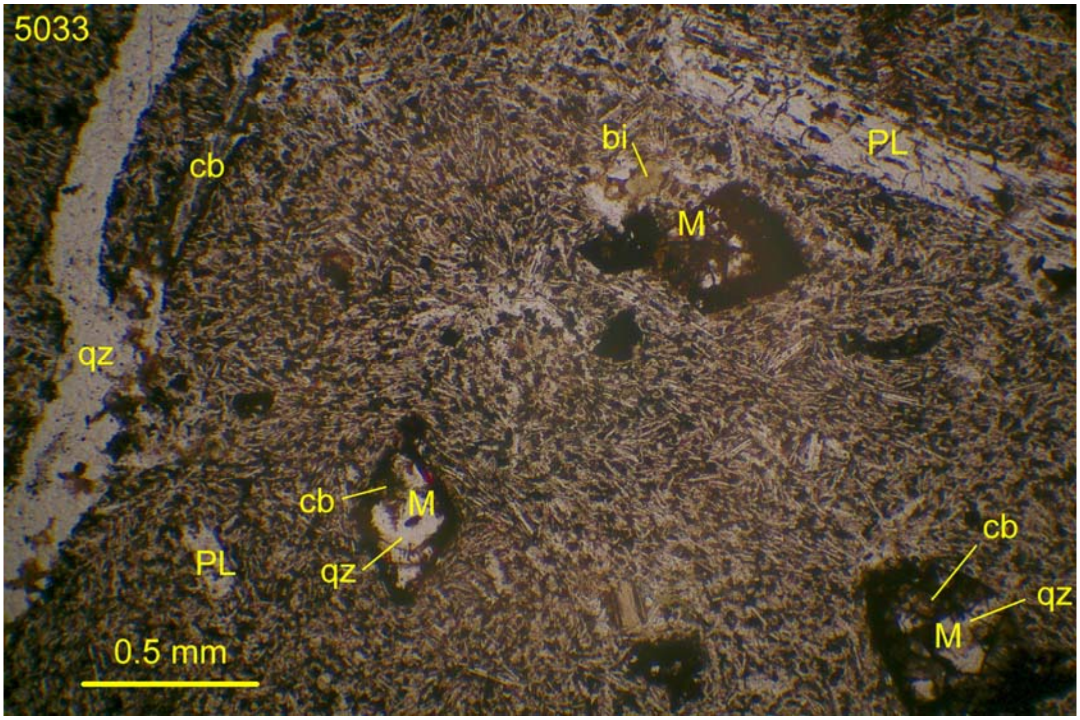
Plagioclase crystals are mostly euhedral laths ranging from phenocrysts up to 1.5 mm long down to microlites <0.1 mm long. The crystals are virtually fresh (unaltered) with local oscillatory zoning but contain local inclusions of clinopyroxene or rarely the relict mafic, both mostly <0.1 mm in size, or in places glass (?). Composition appears to be about labradorite, An50-60 (rim to core), based on extinction X^001 of 25 to 35 degrees, respectively.

Clinopyroxene forms smaller, sub- to euhedral, rounded to lath-like crystals rarely over about 0.5 mm long with pale green colour (but no pleochroism) and large extinction angle around 43 degrees (likely augite). The crystals are commonly intergrown with plagioclase, and are remarkably fresh (unaltered).

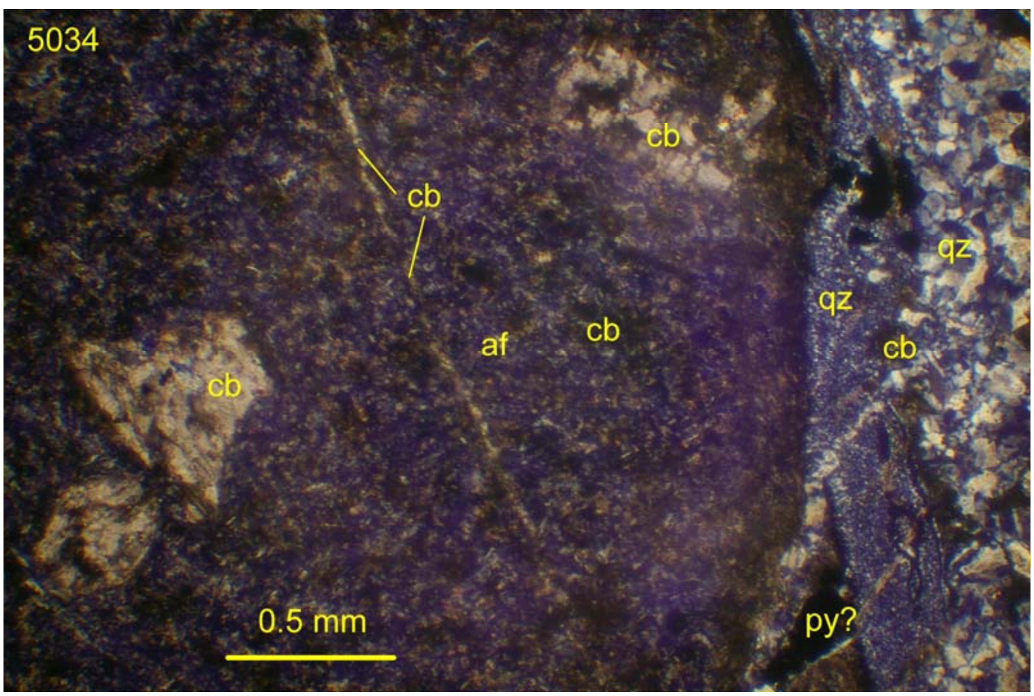
Relict mafic phenocrysts have mostly sub- to locally euhedral outlines (possibly glomeratic) up to 2.5 mm long. They are pseudomorphed by a pale brownish to yellowish green mineral with good, length-slow cleavage and moderate to high birefringence; absorption is greatest parallel to the slow ray. Although it may be merely secondary biotite, it might also be bowlingite (a mineral that typically replaces olivine in basalts; iddingsite is usually more reddish brown and has higher relief). Rarely there is minor carbonate (ragged subhedra mostly <0.5 mm) or quartz (subhedra <0.1 mm). Locally, narrow rims of opaque are present, and there are small opaque oxide crystals <0.1 mm long within the relics. The shapes of the pseudomorphs are not diagnostic; however, since they are so strongly altered, they most likely represent a mafic mineral higher on Bowen's reaction series than clinopyroxene (therefore not likely amphibole), and since the clinopyroxene is so fresh, it seems unlikely that they could have been orthopyroxene. Thus it seems likely that they represent former olivine, but this is speculative.

The matrix is dark brown to black, amorphous and apparently isotropic, suggesting it is most likely volcanic glass. It contains minute (5-40 micron) opaques that are generally hard to see due to the opacity of the matrix, but the magnetic character of the rock suggests most are likely magnetite or ilmeno-magnetite.

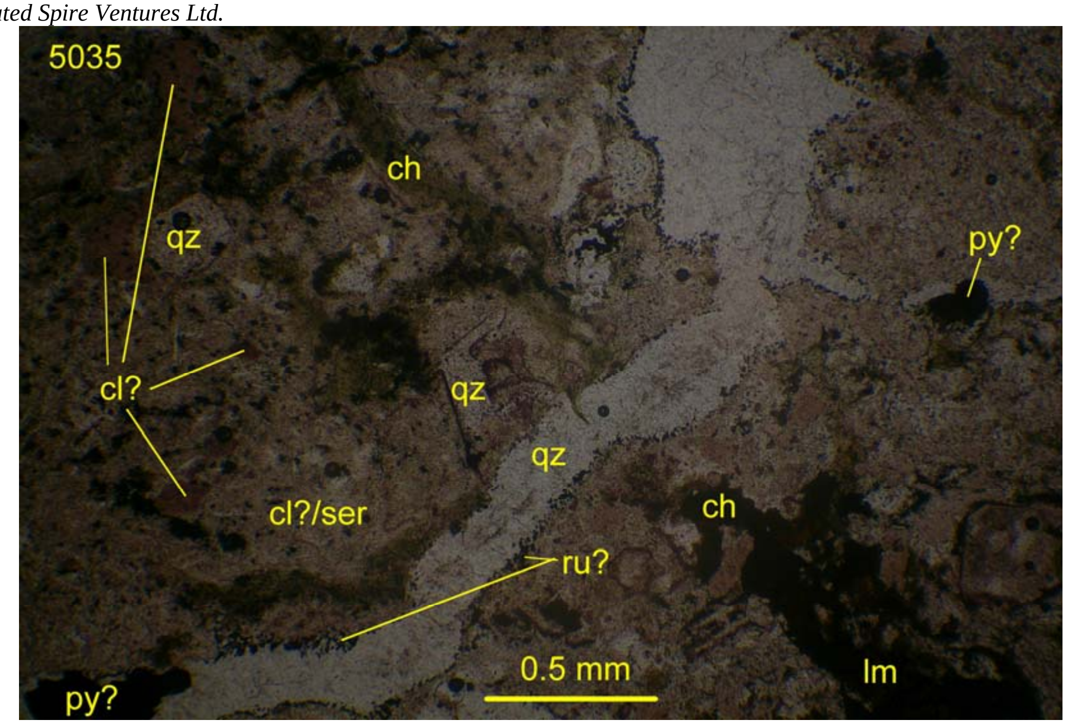
In summary, this does appear to be basalt (possibly originally olivine basalt?) composed of small plagioclase and clinopyroxene crystals, plus scattered relict mafic (olivine?) phenocrysts now pseudomorphed by biotite or bowlingite (?), minor carbonate, rare quartz, in a groundmass of glass (?) and minute opaques, likely ilmenite/magnetite.



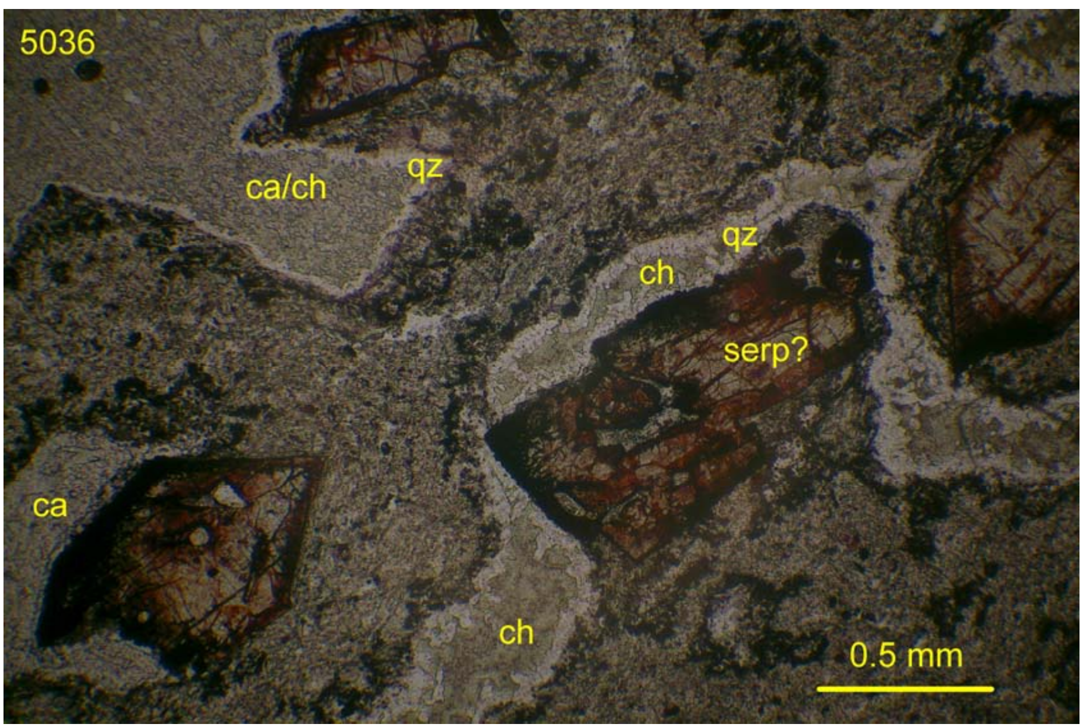
5033: Basalt composed of scattered plagioclase (PL) and relict mafic (M, possibly originally olivine?) phenocrysts, the latter altered to carbonate, quartz, green biotite (bi) and hematite (opaque), in trachytic-textured groundmass of plagioclase microlites, interstitial clinopyroxene and opaque oxides. Vein consists of chalcedonic quartz (qz) and carbonate (cb). Transmitted plane light, field of view 3 mm wide.



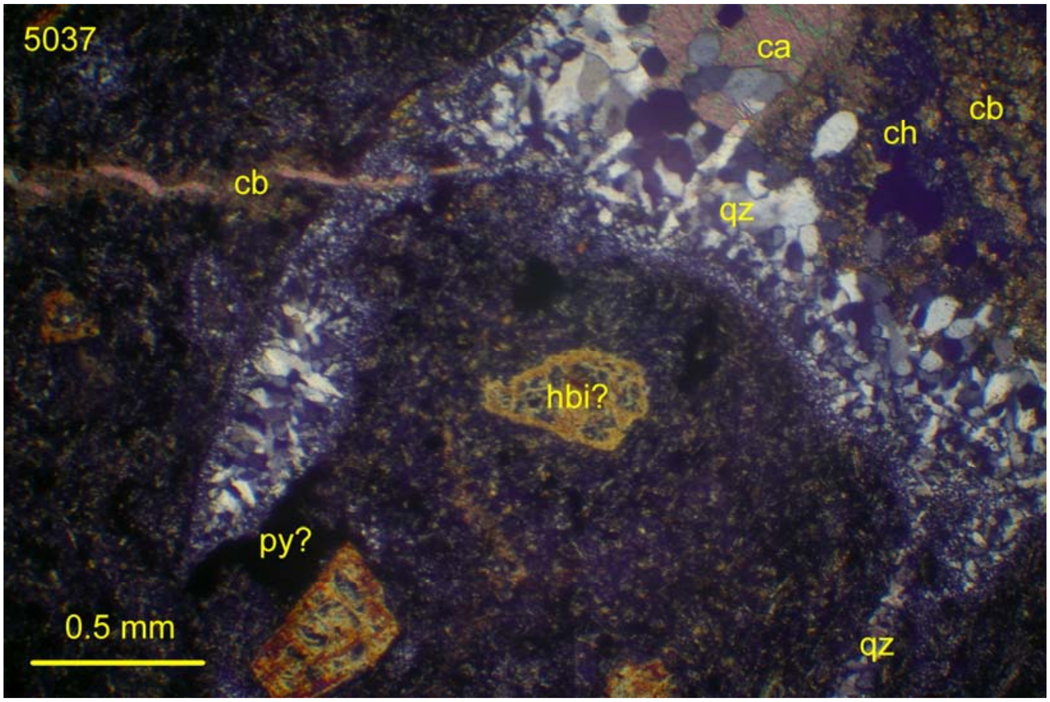
5034: Basalt (?) containing relict phenocrysts pseudomorphed by carbonate (cb) in a groundmass strongly altered to carbonate-interstitial Kspar (?) in association with veinlets of banded fine- to extremely fine-grained (chalcedonic?) quartz (qz) or lesser carbonate, minor opaque (likely pyrite). Transmitted light, crossed polars, field of view 3 mm wide.



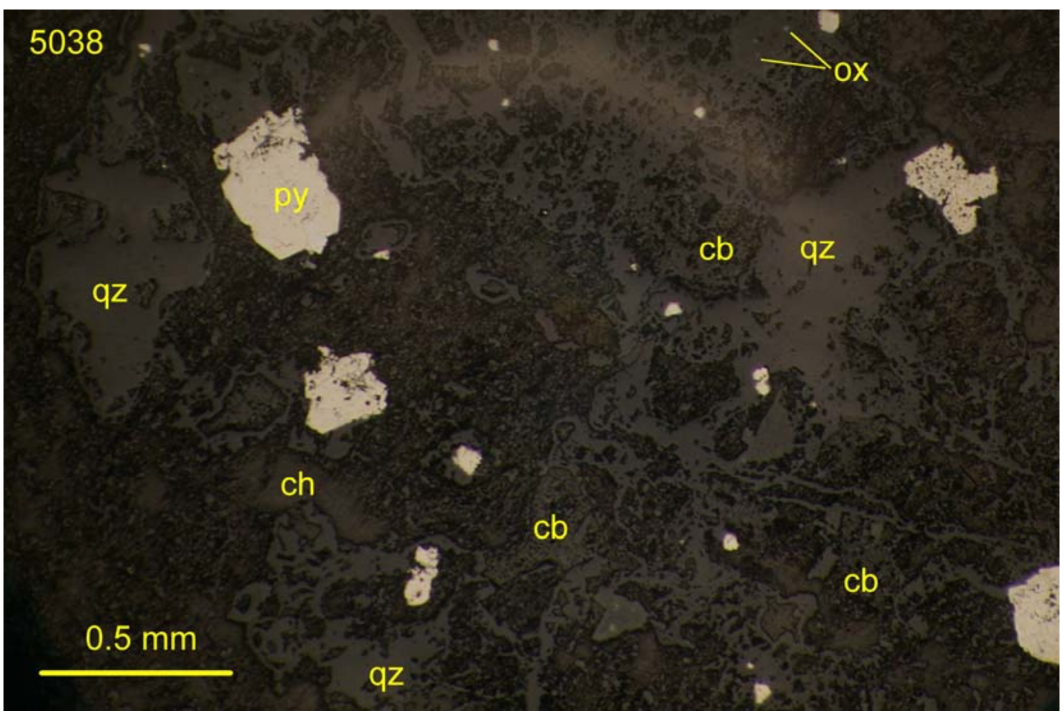
5035: Rock of uncertain derivation highly altered to brownish clay? (cl?), clay?/sericite (cl?/ser) and quartz (qz), particularly in pseudomorphs of former mafic (?) crystals with euhedral outlines, cut by veinlets of 1) chlorite (ch) and limonite (lm) and 2) quartz and pyrite? (py?) with borders of rutile (?). Transmitted plane light, field of view 3 mm wide.



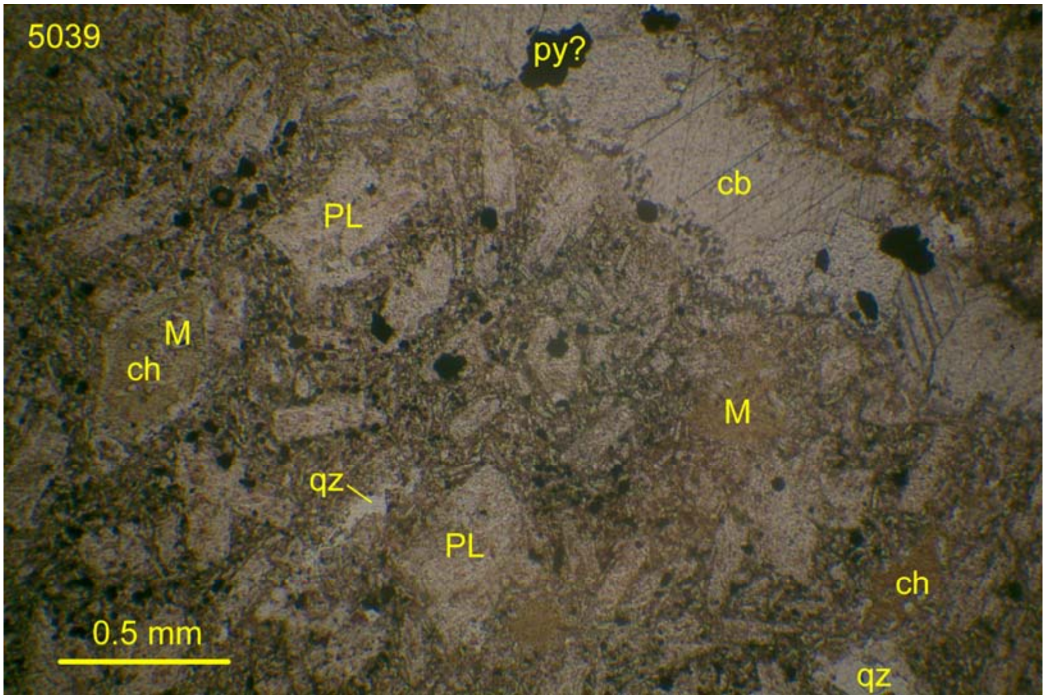
5036: Relict olivine? sites pseudomorphed by serpentine? (serp?) and limonite, relict plagioclase? sites and/or amygdules filled with calcite (ca), chlorite (ch) and rimmed by quartz (qz) (similar minerals also occur in discontinuous veinlet). Note remobilization of opaques in microlitic/chloritic groundmass near veinlets. Transmitted plane light, 3 mm wide.



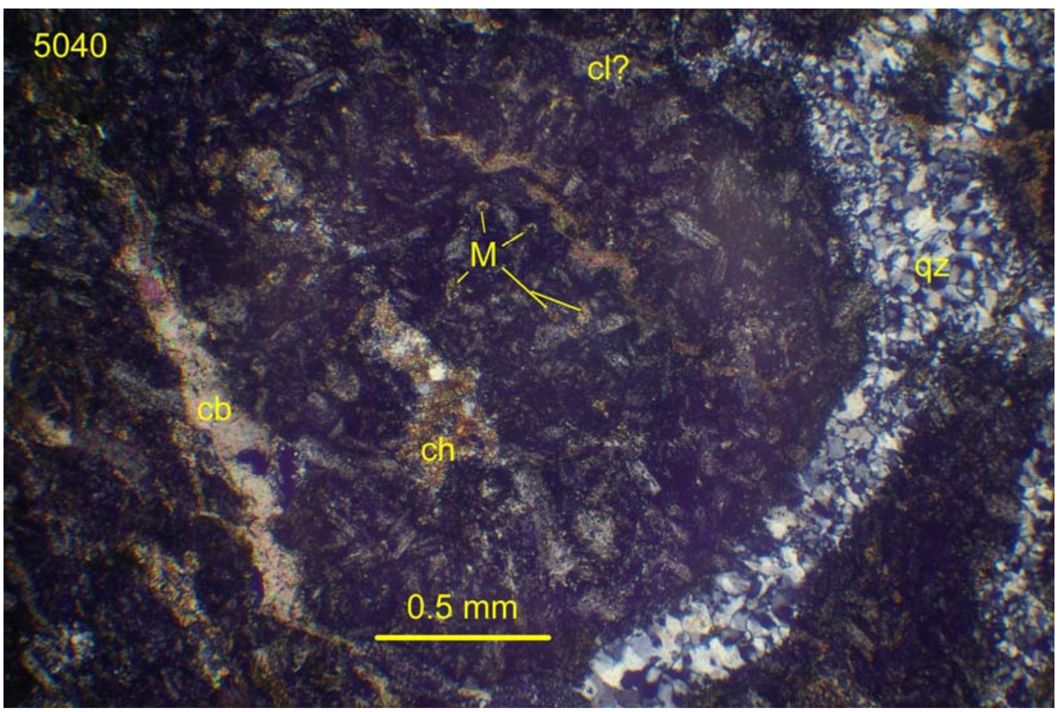
5037: Amygdular olivine? basalt, with amygdules filled by calcite (ca) at core and carbonate (cb)/chlorite and cockade-textured quartz (qz) at rims, grading into veinlets of quartz or carbonate, and relict mafic sites replaced by hydrobiotite? (hbi?), in groundmass of alkali feldspar microlites, chlorite/hydrobiotite and opaques (partly pyrite, py?). Transmitted light, crossed polars, field of view 3 mm wide.



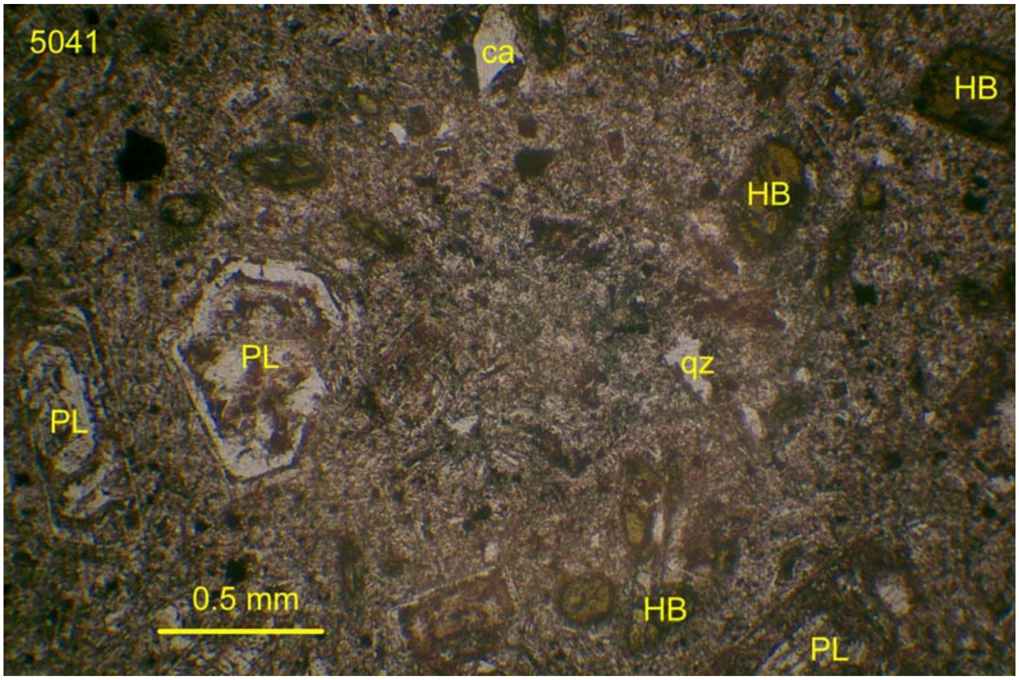
5038: Strongly altered amygdular olivine? basalt, with amygdules grading to microveinlet/breccia networks of quartz (qz), carbonate (cb) plus abundant sub/euhedral pyrite (py); opaque iron oxides (ox) such as hematitic limonite (possibly partly to largely after magnetite?) are mostly too fine to see. Reflected light, uncrossed polars, field of view 2.75 mm wide.



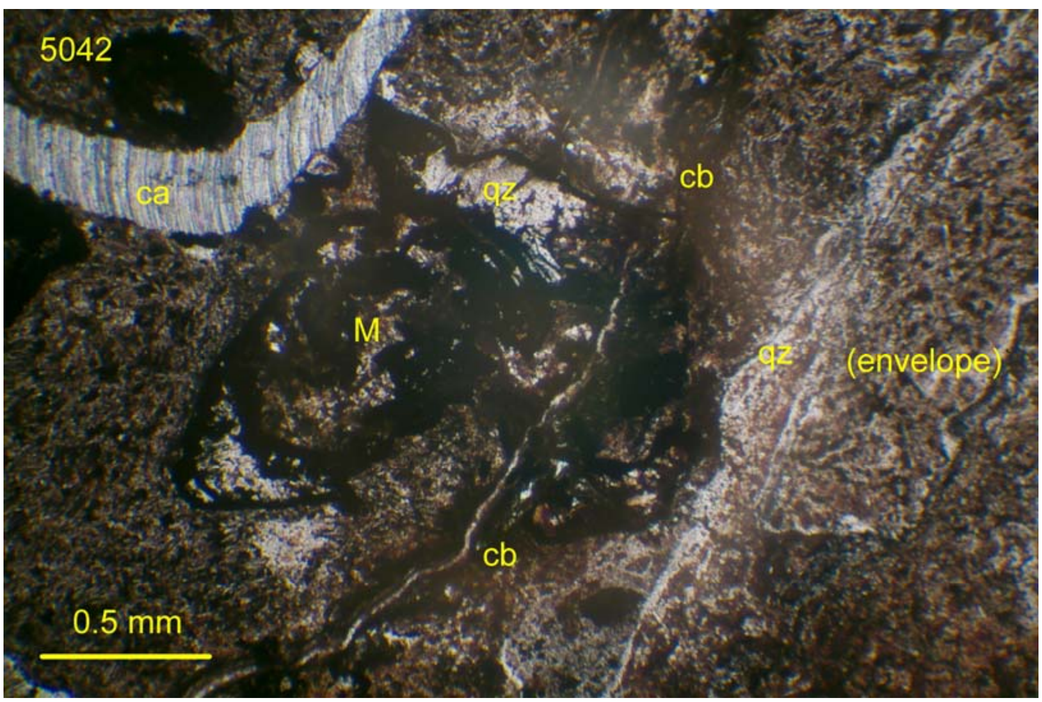
5039: Finely porphyritic andesite (?) composed of relict phenocrysts of plagioclase? (PL) altered to clay?/sericite and Kspar (?), mafics (M) altered to chlorite (ch) or quartz (qz), cut by vein of carbonate (cb) and opaque that is likely pyrite (py?; also disseminated in envelope to vein). Transmitted plane light, field of view 3 mm wide.



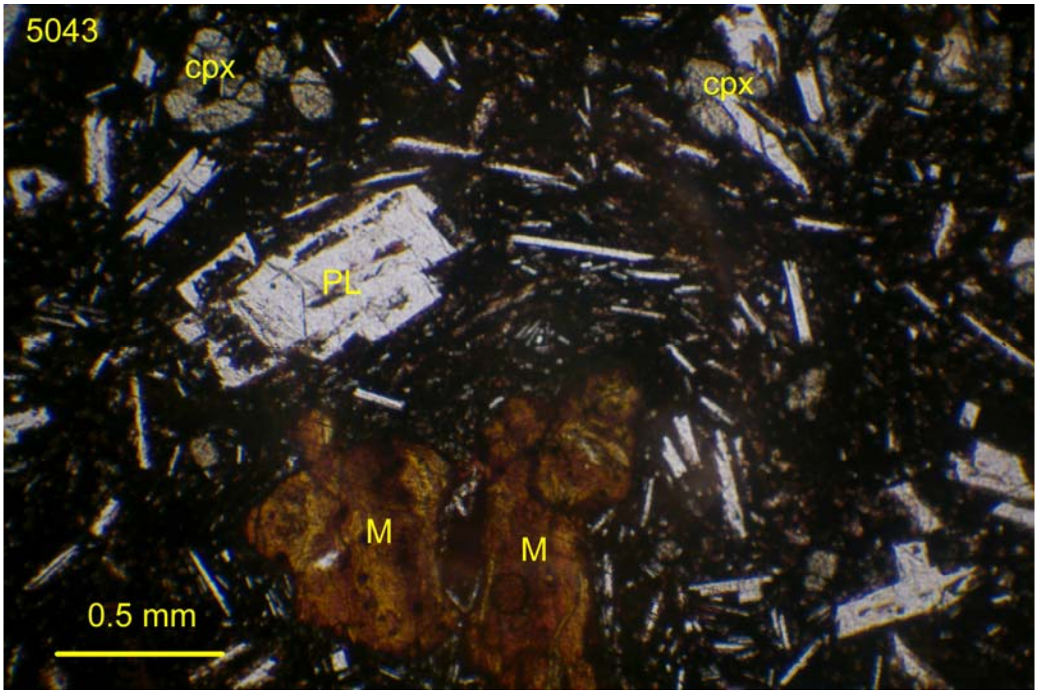
5040: Rock of uncertain derivation composed mainly of Kspar laths (apparently primary?) and smaller mafic relics (M), altered to clay?/sericite or chlorite respectively, cut by swarms of narrow anastamose veinlets filled with quartz (qz) or carbonate (cb), locally chlorite/hydrobiotite (ch) or clay? (cl?). Transmitted light, crossed polars, field of view 3 mm wide.



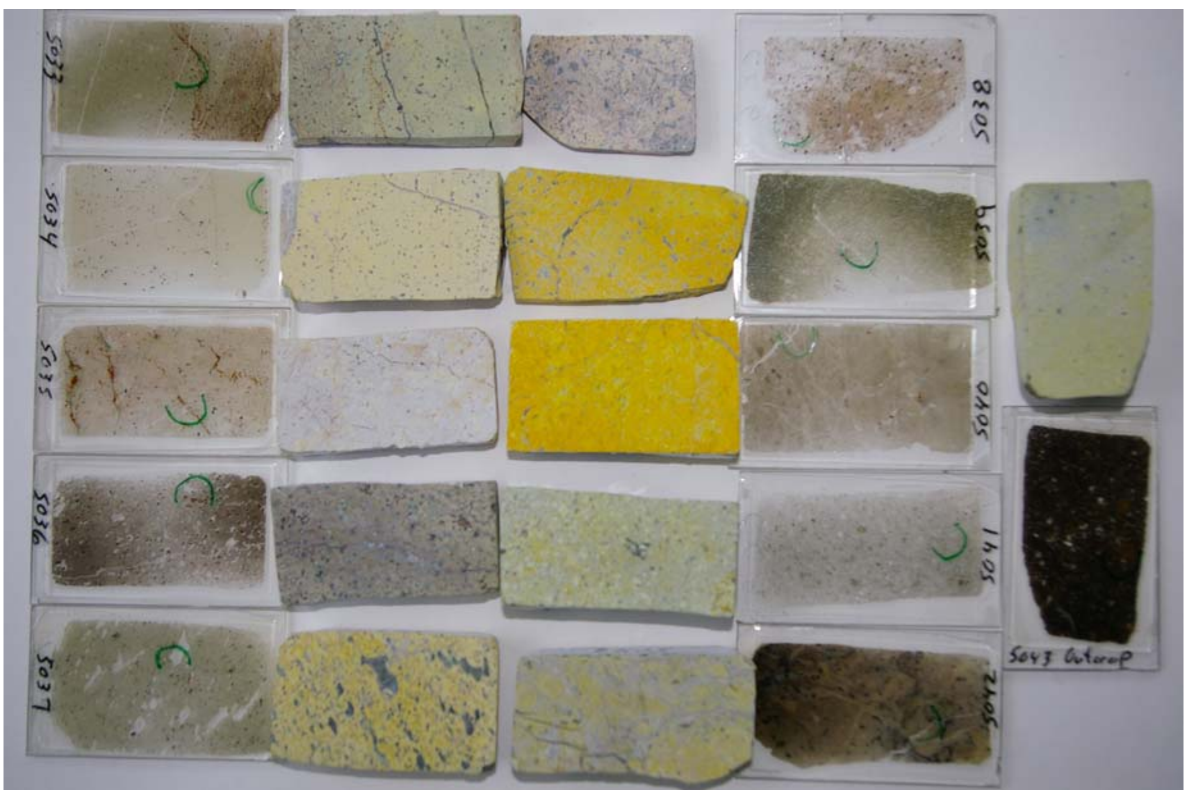
5041: Andesitic dike rock composed of oscillatory zoned plagioclase (PL, zoning picked out by clay?/sericite alteration), and lesser hornblende (HB, partly altered to carbonate, ca) phenocrysts set in groundmass of plagioclase with interstitial K-feldspar and chlorite, scattered opaque Fe-Ti oxides, rare quartz (qz). Transmitted plane light, field of view 3 mm wide.



5042: Early, anastamose microcrystalline ("chalcedonic") quartz (qz)-brownish dolomitic/ankeritic carbonate (cb) veinlet network with envelopes of "bleached" carbonate-clay?/sericite alteration, cutting mafic volcanic rock with relict mafic (M) sites outlined by opaque oxides, and cut by cross-fiber calcite/aragonite (ca) veins. Transmitted plane light, 3 mm wide.



5043: Small, seriate and locally trachytic textured plagioclase (PL), lesser clinopyroxene (cpx) and relict mafic crystals in dark (semi-opaque, isotropic) glass (?) groundmass with minute opaque oxides. Relict mafics (M) are pseudomorphed by brown biotite or bowlingite (?) and may be after olivine (?). Transmitted plane light, field of view 3 mm wide.



Overview of thin sections and offcuts (green semi-circles mark photomicrograph locations).

Appendix G:

Eco Tech Analytical Certificates

Appendix H:

2007 Geological Maps and Mineralization Cross-Sections

H1. South Discovery Zone Geology, Alteration, and Mineralization Map (scale 1:1000)

H2. North Discovery Zone Geology, Alteration, and Mineralization Map (scale 1:1000)

H3. Plan map showing the 2006 and 2007 Drill Holes in the South Discovery Zone

H4. Plan map showing the 2006 and 2007 Drill Holes in the North Discovery Zone

H5. Drill Cross-Sections showing Au mineralization intercepts > 0.2 g/mt from the South Discovery Zone (Sections 1SE to 6SE)

H6. Drill Cross-Sections showing Au mineralization intercepts >0.2 g/mt from the North Discovery Zone (Sections 1NE to 7NE)