ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT: Report on a Petrographic Study of the Hot Bath Property, Dease Lake Area

TOTAL COST: $4,641.53

AUTHOR(S): John Buckle, P.Geo.
SIGNATURE(S): John Buckle

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): 5544585, 5651798
STATEMENT OF WORK EVENT NUMBER(S)/DATE(S):

YEAR OF WORK: 2017

PROPERTY NAME: Hot Bath

CLAIM NAME(S) (on which work was done):

1025437

COMMODITIES SOUGHT: copper, gold

MINERAL INVENTORY MINFILE NUMBER(S),IF KNOWN:

MINING DIVISION: Liard
NTS / BCGS: 104 I
LATITUDE: ________58° 10' 04" N
LONGITUDE: _______129° 33' 32" W (at centre of work)
UTM Zone: 9 EASTING: 467117 NORTHING: 6447527

OWNER(S): Gray Rock Resources Ltd.
Suite 900, 570 Granville Street
Vancouver, BC V6C 3P1

MAILING ADDRESS:

OPERATOR(S) [who paid for the work]:

MAILING ADDRESS:

REPORT KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude. **Do not use abbreviations or codes**)

Mid-Jurassic Plutonic Suite, Three Sisters potassic phase, Three Sisters central felsic phase

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:
03963, 06323, 35456

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (in metric units)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for …)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres, number of holes, size, storage location)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling / Assaying			
Petrographic			$4,641.53
Mineralographic			
Metallurgic			
PROSPECTING (scale/area)			
PREPATORY / PHYSICAL			
Line/grid (km)			
Topo/Photogrammetric (scale, area)			
Legal Surveys (scale, area)			
Road, local access (km)/trail			
Trench (number/metres)			
Underground development (metres)			
Other			
		TOTAL COST	$4,641.53

Report on Petrographic Study of the Hot Bath Property, Dease Lake Area, Liard Mining Division, British Columbia

Decimal Degrees

Latitude: 58.167792

Longitude: -129.558928

Degrees, Minutes, Seconds

Latitude: 58° 10' 04'' N

Longitude: 129° 33' 32'' W

NTS 104 I

UTM Easting: 467117 m Northing: 6447527 m Zone: 9

WRITTEN FOR:

DeCoors Mining Corp.

120-9847 Manchester Dr.

Burnaby BC V3N 4P4

WRITTEN BY:

John Buckle, P.Geo. Geological Solutions

DATED: April 2, 2018

Contents

Summary

The Hot Bath claim block covers almost 4,000 hectares near the centre of the East sheet of the recently studied Quest Northwest project of Geoscience BC. The property was selected based on results from rock geochemistry and geological mapping completed as part of the Quest study. An airborne magnetic geophysical survey of the area supports the interpretation of mid-Jurassic calc-alkaline intrusives that are known to be favourable host rocks for copper-gold mineralization (Aris report 34288). This report is a description of a petrographic study of selected drill core samples from the Hot Bath property.

During the 2015 field season 760 mobile metal ion soil geochemistry samples were collected on nineteen parallel east-west lines near the centre of an interpreted intrusive and several irregular sample lines at 25 meter stations. Induced polarization data was collected on twelve northwest/southeast geophysical survey and some samples were collected along on two variable lines, along with rock samples from outcrop. These rock samples were taken from steeply dipping foliated gossanous quartz monzonite. The MMI data was reprocessed using data processing software by Geosoft and for the creation of enhanced interpretation maps. The correlation between the data and the interpreted geological information is excellent. The data indicated a ringed intrusive with anomalous samples of copper and gold on the structure. The property has the potential to host a mineralized porphyry intrusive similar to the nearby Gnat and Red Chris deposits. On two occasions in 2014 samples were collected for a total of 56 soil samples 43 using MMI technique and analysis and 13 standard soil with ICP analysis and 4 rock samples described in assessment report 35456. This report describes the petrographic study of samples diamond drill core with alteration taken from various depths of the 1,000 meter, four hole diamond drill program conducted in 2017.

The Hot Bath property has the potential to host a copper and/or copper-gold porphyry. The geology as identified by Geoscience BC indicates a mid-Jurassic assemblage of calc-alkaline plutonic rocks of favourable composition to be mineralized. This coupled with high copper values from samples acquired within the claim block and the circular magnetic structure support the premise for a mineralized intrusive. The Quest study area included a more detailed study of the area of the Hot Bath claims. The study identified a new mineralized zone named Pat West. Two samples were taken during the study one of which reported over 0.7% copper. The other sample was reported to have been taken from a pyrite zone. These samples, along with the mapped geology and geophysical circular structure suggest a mineralized differentiated intrusive. This is a reasonable interpretation further supported by the fact the structure is located along a geological contact and within a few kilometers of a major fault structure striking northwesterly. The MMI survey shows anomalous copper and gold on the flanks of the magnetic high interpreted to be an intrusive in the center of the Hot Bath claim block. During the MMI survey, prospecting located an outcropping quartz-sulphide vein that was sampled with 3 rock samples taken from the same location. These samples returned high values of copper > 3% and gold values > 3 g/t. A continuation of geochemical sampling program is recommended to determine the extent of the mineralization in the project area. Geophysical survey with induced polarization, magnetometer and MMI soil surveys were conducted during the 2015 field season and the results of these surveys are described in a previous assessment report.

Introduction

This report discusses the results of a petrographic study of eleven rock samples selected from drillcore within DeCoors', Hot Bath property in British Columbia, Canada. The petrographic report by Dr. John G. Payne, Ph.D., P.Geol. of Vancouver Petrographic is included with this report. Eleven samples were selected from drillholes located at 466897 6448114 and 466622 6447838 on claim number 1025437.

This report was written by John Buckle of Geological Solutions at the request of Mr. Peter Michael Burjoski, of DeCoors Mining Corp. as operator for the Gray Rock Resources Hot Bath property option.

Site visit on July 16, 2015 was by John Buckle, Peter Burjoski, Matt Fraser and Ryan Dix, a subsequent visit by DeCoors was accompanied by Bram van Straaten while the geochemical sampling program was being conducted. ridge and found another mineralized vein 500 metres apart. Bram also found a rock and said, "if you want to sell a porphyry starter here you go" The rock is a rhyolite and it's blue and white with pyrite. This rhyolite vein is well exposed and gossanous.

The east west grid with 25 metre spacings and 100 metre lines and collected over 700 MMI soil samples and 6.1 line kilometers of induced polarization and 3.5 line kilometers of geophysical survey.

In 2017 four diamond drill holes were drilled on the IP anomalies detected during the 2015, 2016 and 2017 surveys. Alteration samples were selected from the drillcore for petrographic study.

FIGURE 1 HOT BATH PROPERTY LOCATION MAP

Property and Ownership

The Project is comprised of twelve mineral claims covering a total area of 3993.097 hectares in area 104I.013, owned 100% by DeCoors Mining Corp. and subject to an option agreement with Gray Rock Resources.

TABLE 1 CLAIM TABLE

Tenure Number	Type	Claim Name	Good Until	Area (ha)
1015381	Mineral	HOTBATH 1	20201002	34.1429
1025437	Mineral	HOT BATH EXTENTION	20201002	1587.5978
1036633	Mineral	HOTBATH EAST	20201002	255.8932
1036634	Mineral	NW EXTENSION	20201002	204.716
1036737	Mineral	BLOCK C	20201002	102.393
1036738	Mineral	2 BIT	20201002	34.1328
1037490	Mineral	HOTBATH WEST	20201002	221.8763
1037491	Mineral	HOTBATH NORTH	20201002	119.4378
1037647	Mineral	HB SPUR	20201002	715.9183
1038270	Mineral	HOTBATH NORTH 2	20201002	170.6057
1044587	Mineral	HOT BATH 2016	20201002	187.7245
1055092	Mineral	WEST X	20180922	358.6587

Total Area: 3993.097 ha

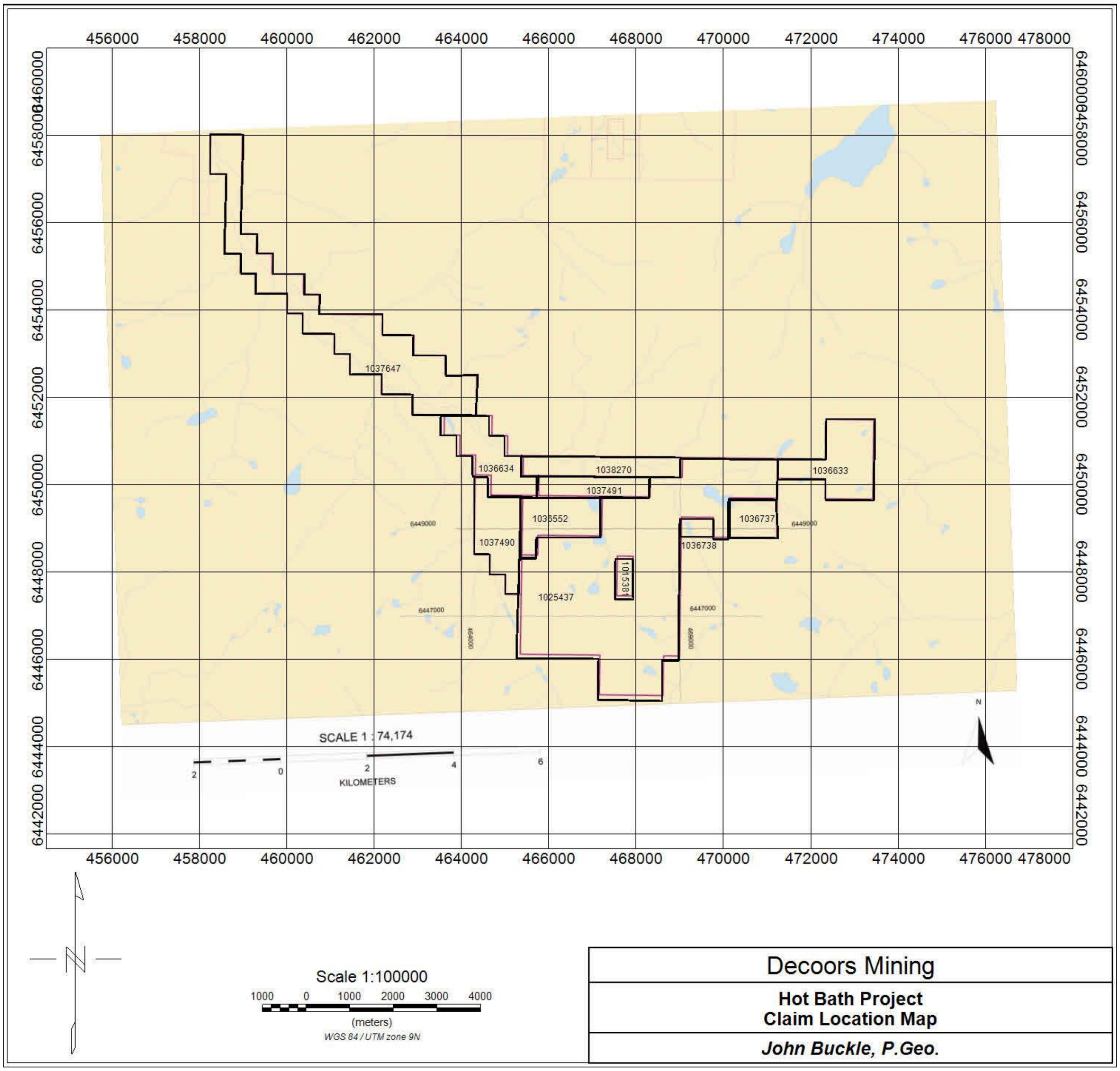

FIGURE 2 HOT BATH CLAIM MAP

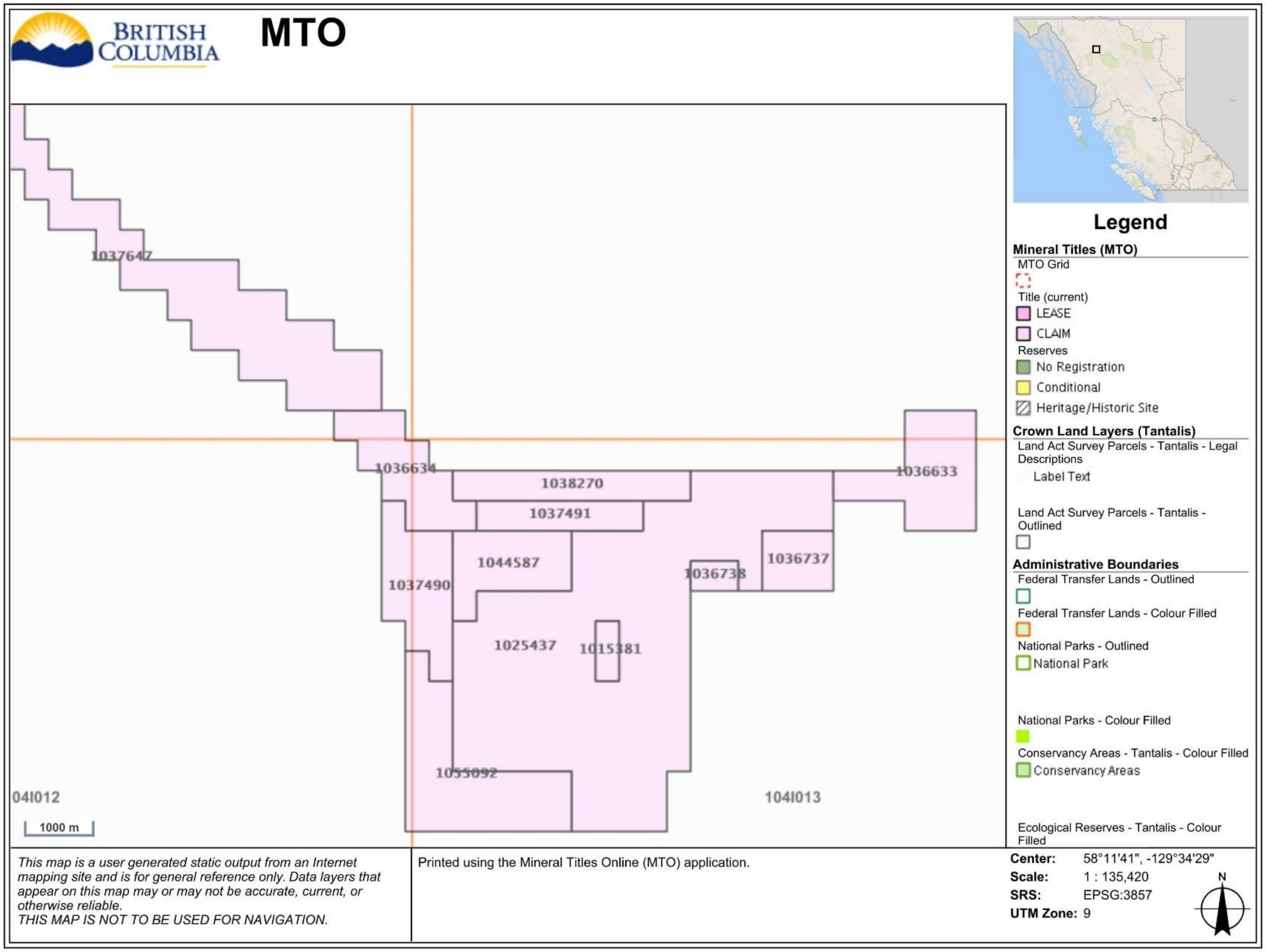

FIGURE 3 MTO CLAIM MAP

Weather and Vegetation

The topography is gently sloping to moderately steep glacier eroded terrain. There are steep sided cirque valleys and some small cirque lakes. The streams were generally confined to these cirque valleys Steep razor back ridges and talus slope often occur at the upper slopes of the cirque valleys The vegetation is primarily alpine meadows and minor alpine fir spruce and shrubs, on some of the lower elevations sub alpine fir and spruce are common. The claim group lies almost all above tree line (1500m to 2000m) with several lakes – five connected in the central part of the claim and one in the southeast corner. As most of the property is above tree line numerous helicopter landing spots will occur throughout the claims. Approximately 6 kilometers northwest of the current property an old abandoned airstrip is noted in the headwaters of the Tanzilla River valley. The Tanzilla River headwaters 350 m west of the claim block flows northwest year-round and is a tributary of the Stikine River. River drainage flows to the Pacific Ocean and the Continental Divide between the Pacific and Arctic Oceans lies a short distance to the North. The region has a relatively dry climate, and snow cover in winter is generally moderate. The climate in the area is semi-arid with moderately warm summers and cold dry winters. Typical temperature ranges are from mid to upper 20’s C in summer and –20 to –30 C in winter. Precipitation averages about 100 cm. per year. For the most part vegetation is limited and consists primarily of alpine grasses, flowers and lichen on the plateau with occasional shrubs in wind protected areas. Fieldwork can normally start at lower elevations in early June and at the upper elevations by July. Cold weather, winds and snow squalls make field work difficult at the upper elevations past September although drilling programs have continued well into November at the nearby Red Chris deposit.

Access

The Hot Bath Tenures are situated in the Three Sisters Range, just East of the headwaters of the Tanzilla River and 38 km South-East of the community of Dease Lake and 42 km North-East of Iskut, B.C. Access would be by helicopter from Dease Lake and there is a staging area just off Highway 37 - 15 km west of the claims. Highway 37 is commonly called the “Stewart-Cassiar HGW”. There is a bulldozer trail leading up the Tanzilla valley from the vicinity of the B.C. Rail right of way to within about 4km of the claims and would be passable to tracked vehicles. The (Hot Bath) Region may be entered by two principal routes: From Prince George summer boat traffic extends 350 miles from Summit Lake to Ware on Finlay River. From Ware fair pack-horse trail leads 44 miles up Fox River to Sifton Pass and continues North along the Trench to Lower Post on Liard River, which is 72 miles North-West of Chee House. The Alternative route is from Telegraph Creek - the head of navigation on Stikine River, and connected with Dease Lake by a 72 mile road. The trail from Dease Lake to Wheaton Creek is 45 miles long and connects with the down river trail which extends to the mouth of the Turnagain by way of Mosquito and Sand Creeks. Although the relief is as much as 5,500 feet all parts of the region may be reached on foot and the only hazardous sections are in the Granite Mountains. Pack-horse trails only are mapped and these are generally unobstructed; in addition, there are a few fragmentary trappers' and Indian trails. The Kechika is navigable below Driftpile Creek at high water. At low water Braid Creek marks the head of navigation for boats of moderate size. Frog River is ascended easily to Jackstone Creek and Gatage River is navigable beyond the canyon. Dease Lake has locally based helicopter and aircraft with scheduled Air service from Smithers. Smithers and Terrace locally supply this region. Road travel south on Highway 37 to Smithers is 7 hours. The region has had an active history in mining operations, and has been permitted for mineral exploration with heavy equipment and operators available. Smithers, Terrace, BC and Watson

Lake, Yukon, are population centers with over 30,000 people that are within a three- to seven-hour drive, and Dease Lake is 38 kilometers northwest of the Hot Bath Claims. All these centers have been intimately involved with mineral exploration and mining operations and are able to provide all amenities including police, hospitals, groceries, fuel, helicopter services, hardware and other necessary items. Drilling companies are present in communities nearby while assay facilities are located in Prince George, Smithers, and Vancouver, British Columbia. Dease Lake has a small airport with a paved runway and a locally based helicopter. The airlines are recognizing the mining work in the area and Northern Thunder Air (NT Air) have flights Three days a week from Vancouver to Terrace with a connecting flight to Dease and named it the "Miner's Express".

Infrastructure

Dease Lake is 600 km from Smithers (about an 8 hour drive) Watson Lake, Yukon is 256 km and a 4 hour drive. Both have excellent supplies and service industry. It is also home to a grocery store, hardware store Propane and tire repair service, a gas station, restaurants and good accommodation. There is also an RCMP Outpost, BC forestry office, small hospital, Northern Collage and a school. Dease Lake has locally based helicopter and aircraft with scheduled Air service from Smithers. The region has had an active history in mining operations and has been permitted for mineral exploration with heavy equipment and operators available. Smithers, Terrace, BC and Watson Lake, Yukon, are population centres with over 30,000 people that are within a three- to seven-hour drive, and Dease Lake is 38 kilometers northwest of the Hot-Bath Claims. All these centers have been intimately involved with mineral exploration and mining operations and are able to provide all amenities including police, hospitals, groceries, fuel, helicopter services, hardware and other necessary items. Drilling companies are present in communities nearby while assay facilities are located in Prince George, Smithers, and Vancouver, British Columbia. The nearest communities are Telegraph Creek and Dease Lake both are resource (mining, logging, and ranching) based communities with an experienced labour force. The communities are supply and service points for fuel, groceries, accommodation and heavy construction equipment. Both also have regular scheduled air and road service.

Geology

The Dease Lake area is situated within the Stikine terrane, an extensive subduction-generated island arc magmatic system responsible for recurring calcalkaline and/or alkaline plutonic events and associated Cu-Au mineralization, mainly during Late Triassic and Early Jurassic time. Prospective Mesozoic volcanic rocks exposed around the margins of the Bowser Basin form an arcuate belt containing porphyry deposits that include KSM (MINFILE 104B 103), Galore Creek (MINFILE 104G 090) and Shaft Creek (MINFILE 104G 015) deposits to the west, and the Kemess deposits (MINFILE 094E 094) to the east. The Dease Lake study area is located at the apex of this arcuate belt, immediately north of the Red Chris Cu-Au porphyry deposit (MINFILE 104H 005) and adjacent to the Hotailuh batholith, a large composite intrusive complex similar in age to the intrusions hosting porphyry mineralization at the Galore and Shaft Creek deposits. Numerous small plutons intrude mainly Late Triassic arc stratigraphy in the Dease Lake area. Neither the plutons nor the volcano-sedimentary rocks have undergone a thorough regional geological re-evaluation for mineral potential since being mapped by the Geological Survey of Canada in the late 1970s and early 1980s (Gabrielse et al., 1980; Anderson 1983, 1984). Modern detailed bedrock mapping is essential to characterize time–space relationships of this arc segment, which will allow an improved assessment of the potential for mineralization, comparison with mineralized arc segments elsewhere, and integration with the airborne magnetic program. In addition, the project will provide supplementary databases including rock geochemical classification, magnetic susceptibility and geochronology. These data will integrate with regional stream geochemical survey data and airborne geophysics to ensure cost effective exploration targeting for porphyry style mineralization.

Regional Geology

In the Middle Jurassic is characterized mainly by sedimentary rocks of Mesozoic basal clastic assemblage and overlie higher grade basement metamorphic rocks. The village of Likely sits along 14 the northeastern margin of the volcanic assemblage and along back arc-continental margin, volcanic-sedimentary facies change. At least two discrete magmatic events have a strong calc-alkaline affinity and are responsible for at least two episodes of mineralization found in the area. 1. The intrusion-related magmatic-hydrothermal mineralization comprises predominantly copper, gold, silver, molybdenum and/or tungsten occurrences. 2. Mineral occurrences occur peripheral to the main batholith and along contact zones with mineral occurrences of porphyry copper.

MIDDLE JURASSIC THREE SISTERS PLUTONIC SUITE THREE SISTERS PLUTON

a) Tees Creek intrusive: MJ TC Altered Hbl-Fsp-porphyritic hypabyssal intrusive

b) Three Sisters potassic phase: MJ TSp Bt-bearing granite, Qtz-syenite and Qtz-monzonite with Kfs>Plag. Equigranular 1 mm to 4 mm; often 5-20 mm Kfs porphyritic. Includes pink Bt porphyritic dikes

c) Three Sisters central felsic phase: MJ TSc Bt and Hbl-Bt (rare Bt-Hbl) Qtz-monzonite and Qtzmonzodiorite with Plag>Kfs. Equigranular, 2-3mm; 4-5 mm Kfs porphyritic in places; dioritic xenoliths locally present

d) Three Sisters mafic phase: MJ TSm Hbl-rich (minor Bt-Cpx Hbl-rich) Qtz-diorite. Acicular Hbl 0.5-4 mm to 2-7mm; equant Hbl 1-2mm to 4-10 mm

e) Three Sisters finegrained mafic-interm. Phase: MJ TSf Hbl-Bt Qtz-diorite. Equigranular, 1-1.5 mm, often 10 vol.% 1.5-3 mm Plag porphyritic PROPERTY GEOLOGY Over 95% of the Property is covered by a thick mantle of overburden.

Rock units in the area include:

15 LTCH: Cake Hill Pluton Qtz monzonite MJTSm: Mafic Phase hornblende rich diorite MJSp/MJTSm Potassic Phase Qtz syenite/Qtz monzonite MJTSc Felsic Phase Qtz monzonite about 2.0 kilometres west of a batholith of coarse-grained biotite-hornblende quartz monzonite, and is probably a satellite intrusion related to the batholith. Three Sisters potassic phase is defined as (Bt-bearing) granite, Qtz syenite and Qtz monzonite with potassium feldspar. It is equigranular (1 mm to 4 mm_); often 5-20 mm potassium feldspar porphyritic. Includes pink porphyritic dikes. Three Sisters central felsic phase (middle Jurassic) may include rare Biotite-Hornblende, Quartz monzonite and Quartz monzodiorite with potassium feldspar. Equigranular, 2-3 mm; 4-5 mm porphyritic in places; dioritic xenoliths locally present. Three Sisters mafic phase MJ TSM hornblende-rich diorite (to Qtz diorite?). Acicular hornblende 0.5-4 mm to 2-7 mm; equant hornblende 1-2 mm to 4-10 mm. Three Sisters fine- grained mafic phase MJ TSF hornblende diorite (to Quartz diorite?). Equigranular, 1-1.5 mm, often 10 vol.% 1.5-3 mm Pl porphyritic. The nature of the Beggerlay Creek – Cake Hill contact was reinterpreted, and now includes all hornblende-rich diorite and gabbro up to an abrupt change (over a 10 m covered interval) to titanite-bearing, hornblende quartz monzonite of the Cake Hill pluton. Hornblende-rich diorite and gabbro closest to the contact, now assigned to the Beggerlay Creek pluton,

are intensely foliated roughly parallel to the trace of the contact. Minor coarse K-feldspar±epidote dikes (unit LT BCP) crosscut the northwestern Beggerlay Creek pluton, and may be related to a 5 by 1 km biotite metasyenite phase of the Beggerlay Creek pluton mapped about 7 km to the east (Read and Psutka, 1990). Coarse K-feldspar dikes, similar to those within the Beggerlay Creek pluton, also crosscut the augite-phyric coherent rocks of the Stuhini Group near the contact with the mafic phases of the Beggerlay Creek intrusion. Intrusive relationships between the Beggerlay Creek and Cake Hill plutons were not observed, however Anderson (1983, pages 84-85, Appendix 2.3c) reports that in two locations a gabbro dike of suspected Beggerlay Creek affinity intrudes quartz monzodiorite of the Cake Hill.

Mineralization

Mineralization hosted in Late Triassic rocks varies widely in host rock, metal tenor and mineralization style and comprises: Cu only at the Gnat Pass porphyry-style prospect; Au+As±Sb (Cu, Ag reported) hosted in a shear/fault zone at the Dalvenie prospect; Au+Cu+Ag massive sulphide vein in felsic plutonic rocks at the newly discovered “Upper Gnat Creek” mineral occurrence; Cu±Mo pyritic fault zones in Stuhini volcanics at “Three Sisters south”; Cu with trace Ag as small bodies within the Cake Hill pluton at “Mat north”; Cu+Pb+Zn (reported) within stratiform to irregular bodies at the Mat showing; and • Cu (and Mo reported) at the vein-hosted Pat showing, found within the Late Triassic Cake Hill pluton, but closely associated with the Three Sisters pluton. Mineralization hosted in the Three Sisters pluton appears less variable, and comprises: Cu only at the “Pat west” and “Three Sisters” mineral occurrences; Geological Fieldwork 2011, Paper 2012-1 117 Cu±W at the “Three Sisters north” mineral occurrence; and Cu+Zn+Pb+Mo reported at the BCR showing. Possible metal zonation is present in both the “Pat west” and “Three Sisters” occurrences, with relatively large, gossanous, pyrite-dominated zones trending towards smaller quartz vein-hosted, pyrite+copper sulphide occurrences. Assay samples indicate 0.3-0.7% Cu in the copper sulphidebearing zones, and Cu±W in the possibly related “Three Sisters north” occurrence. The presence of mineralization in both the Late Triassic rocks and the Three Sisters Middle Jurassic (- Early Cretaceous?) pluton is suggestive of at least two mineralizing events within the Hotailuh batholith. Known intrusion-related mineral deposits in the northern Stikine tectonic terrane are predominantly of Late Triassic to Early Jurassic age (e.g. Red Chris, Galore, Shaft, GJ, KSM), and little to no Middle Jurassic to Early Cretaceous deposits have been recognized. Importantly, the presence 17 of mineral showings and occurrences hosted in the Three Sisters pluton suggests that these younger intrusions might deserve more attention than previously received.

Lithology

The composite Late Triassic to Middle Jurassic Hotailuh batholith occupies 2275 km2 at the centre of the Stikine arch, close to the northern margin of the Stikine terrane in northwestern BC. We present the preliminary results of detailed mapping, geochemical and geochonological sampling aimed at refining the temporal magmatic evolution of the batholith, and building a metallogenic framework that relates mineralization to magmatic events. The project is part of the Geoscience BC funded QUEST-Northwest program developed to stimulate mineral exploration in the northwestern part of the province. This study confirms that the Hotailuh batholith is prospective for intrusion-related mineral deposits that formed during at least two mineralizing events – an older event at ca. 220 Ma and a younger event at ca. 170 Ma. The Late Triassic calc-alkaline metallogenic event produced the Gnat Pass porphyry Cu and several other Cu and Cu-Au occurrences on the edges of the Hotailuh batholith, and may be temporally related with Cu mineralization at Schaft Creek further to the southwest. Newly discovered mineral occurrences in Middle Jurassic calc-alkaline plutonic rocks represent a relatively unrecognized metallogenic event that deserves more attention.

Previous Work

Although several reports (e.g. MINFILE 104I 034,104I 043) have reported work in the area no previous work has been done on the immediate area of the Hot Bath claims. Other reported work in the area include: PAT (MINFILE 104I 043) The Pat copper-molybdenum showing is centred around a drift covered valley north of peak 2196 m. In addition to copper ± molybdenum soil anomalies, several small mineralized outcrops have been described to the south and southeast of the valley (Sadlier-Brown and Chisholm, 1971; Sadlier-Brown and Nevin, 1977). The mineralization reported by these authors comprises disseminations and siliceous veins carrying chalcopyrite and/or molybdenite. In one outcrop, mineralization is characterized by 1-10 mm pyrite±copper sulphide veins with silicified haloes. An assay sample from this location returned 0.3% Cu and slightly elevated Au and 18 Ag (11BVA13-74 in Table 4). The veins are hosted by biotite-hornblende quartz monzonite and quartz monzodiorite, most likely related to the Cake Hill pluton. Biotite quartz monzonite and quartz monzodiorite, interpreted as the central felsic phase of the Three Sisters pluton, is exposed 100 m to the northeast of this mineral occurrence. MAT (MINFILE 104I 034) The Mat copper-lead-zinc showings are located in a deeply incised forested valley system on the southern margin of the Cake Hill pluton, several kilometres north of the Stikine River. The area south and southwest of the showing is part of the Stikine River Provincial Park. Poorly exposed fine grained, stratified sedimentary rocks are found in the valleys and are overlain by more competent augite-phyric coherent rocks exposed at topographically higher levels (Figure 3f). Both the sedimentary and volcanic rocks, as well as surrounding foliated hornblende diorites and gabbros, ultramafic rocks and hornblende quartz monzonites, have been reported to host copper, lead and/or zinc sulphide occurrences (McAusland, 1971). In addition, a soil survey (McAusland, 1971) indicated moderately elevated values of nickel (>300 ppm) over part of the survey area, likely related to occurrences of ultramafic rocks. We identified several sulphide occurrences in the fine grained sedimentary rocks, and one within the Cake Hill pluton (see “Mat north” new mineral occurrence). The mineralization within the sedimentary rocks occurs in laminated to very thinly bedded siltstones to medium- grained sandstones, and forms stratiform and more irregular-shaped bodies up to 20 m wide. The sulphides occur as fine to very fine grained disseminations, stratiform horizons and/or within veinlets. Silicification and/or quartz-pyrite veins occur locally. No copper oxides, copper sulphides, galena or sphalerite were observed, possibly due to their very fine grain size.

In 2014, in order to test for the geochemical signature of a covered mineral deposit, a total of 56 mobile metal ion (MMI) samples were collected from the Hot Bath property. MMI samples were collected at ~25 m intervals transecting aeromag geophysical anomalies.

Decoors continued exploration of the Hot Bath property in 2015 and 2016 completing MMI sampling and Induced Polarization of the central part of the property.

Drill targets were selected for a 1,000 meter diamond drilling program in 2017 to test the induced polarization chargeability anomalies. The drillcore was cut and sampled for assay along with 12 selected samples for of alteration which are the subject of this report.’

GEOLOGICAL UNITS

The Hotailuh batholith comprises a number of different plutons and plutonic phases. It can be subdivided into three plutonic suites, the Late Triassic (ca. 222-226 Ma), Early Jurassic (ca. 184-190 Ma) and a Middle Jurassic–Early Cretaceous suite (ca. 165-171 Ma and ca. 117 Ma, respectively). The Late Triassic plutonic suite comprises, in decreasing age, the Gnat Lake ultramafic to mafic bodies, Cake Hill felsic pluton and Beggerlay Creek ultramafic to mafic pluton. Similar mineralogy, texture, compositional variation and magnetic susceptibility may indicate a genetic link between the Gnat Lake and Beggerlay Creek plutons. Limited evidence of crosscutting relationships suggests that the Gnat Lake ultramafite is older than the Cake Hill pluton, and earlier studies by Anderson (1983) suggest that the Beggerlay Creek pluton is younger than the Cake Hill pluton. However, demonstrable crosscutting relationships are rare, and perhaps all Late Triassic mafic–ultramafic plutonic rocks are roughly age equivalent. The Late Triassic plutonic suite is spatially associated with, and in places intrudes, poorly exposed and poorly dated, intermediate-mafic volcanic and the Three Sisters fine grained mafic phase, showing orange brown altered zone of the “Three Sisters” mineral occurrence. Zone is intensely goethite-stained, contains abundant disseminated pyrite and pyrite in steeply dipping, west-northwest striking fractures.

History

The data used was taken from parallel survey lines on the property, which is located between the communities of Dease Lake and Iskut, BC in the spring and summer of 2014. The 760 MMI samples, 12 line kilometers of IP and 3.5 line kilometers of magnetometer data were collected by field crews contracted by DeCoors Mining Corp. The main purpose of this report is to describe the work done and interpret the results of an MMI soil survey data and geophysical surveys conducted on claim numbers 1025437 and 1036552 near the centre of the Hot Bath claim block. The objective of the exploration program on this property is the search for copper/gold porphyry mineralization. Survey described in this report took place on two separate occasions; the first visit on August 11, 2015 and the second visit took place from 2015. This report interprets the data and describes the survey logistics, the data processing, presentation, and provides the specifications of the survey. The work was conducted by an eight-man crew: Kyle Brennan (labourer), Blayne Nickal, and Robert Voth Matt Fraser(operator), James Fraser (labourer), Hanjo Zink (labourer), Robert (labourer), Kevin Graber (labourer), and Paul Hoffman(cook) and administration by Peter Burjoski (expediter and project management) and John Buckle, P.Geo. (exploration management and supervision)

Petrographic Report

The following is the petrographic report by Dr. John Payne:

Report 170805 for

Peter Shorts,

Decoors Mining Corp,

December 2017

Samples: **HB series: RP2, RP3, SP1, SP2, SP3, SI1 SI2, M1, M2, K1, K2**

Summary:

General:

The samples are from a metamorphic environment, so hydrothermal minerals and textures are superimposed on metamorphic minerals and textures. Alteration of hornblende to tremolite/actinolite probably is mainly of metamorphic origin. Alteration of plagioclase is mainly to sericite and lesser calcite, with a few samples containing epidote or muscovite. Biotite is commonly altered to chlorite and less commonly to muscovite, both with minor Ti-oxide and locally epidote. Magnetite is primary and mainly fresh. Ilmenite commonly contains exsolution hematite, and in places was altered strongly to leucoxene. Pyrite is widespread, but not abundant. Chalcopyrite is present locally in trace amounts. No other copper-bearing sulphides were identified.

Without knowing the spatial relationships of the samples, an overall interpretation is tentative. If the samples are from a copper porphyry system, they are from the peripheral zone, based on biotite being fresh or generally altered to chlorite; plagioclase being mainly altered slightly to sericite, lesser calcite, and locally epidote, and the generally low content of pyrite.

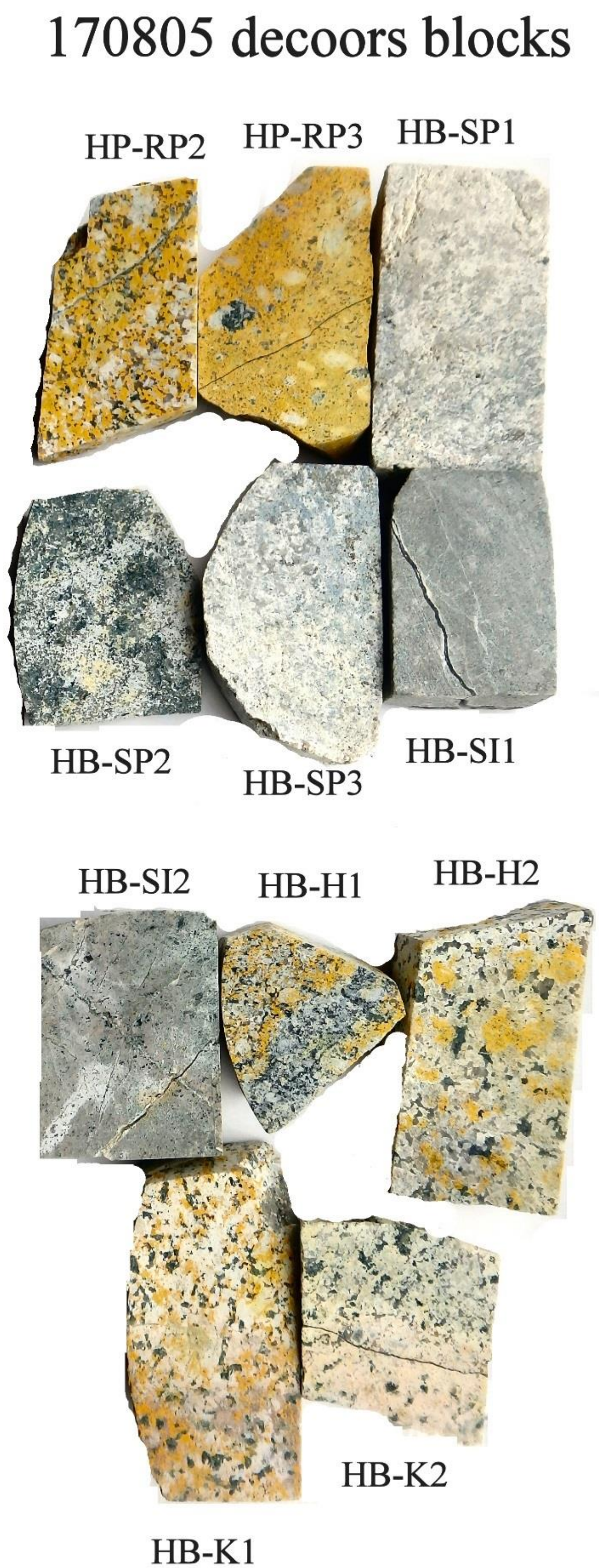

FIGURE 4 ORIGINAL SAMPLES

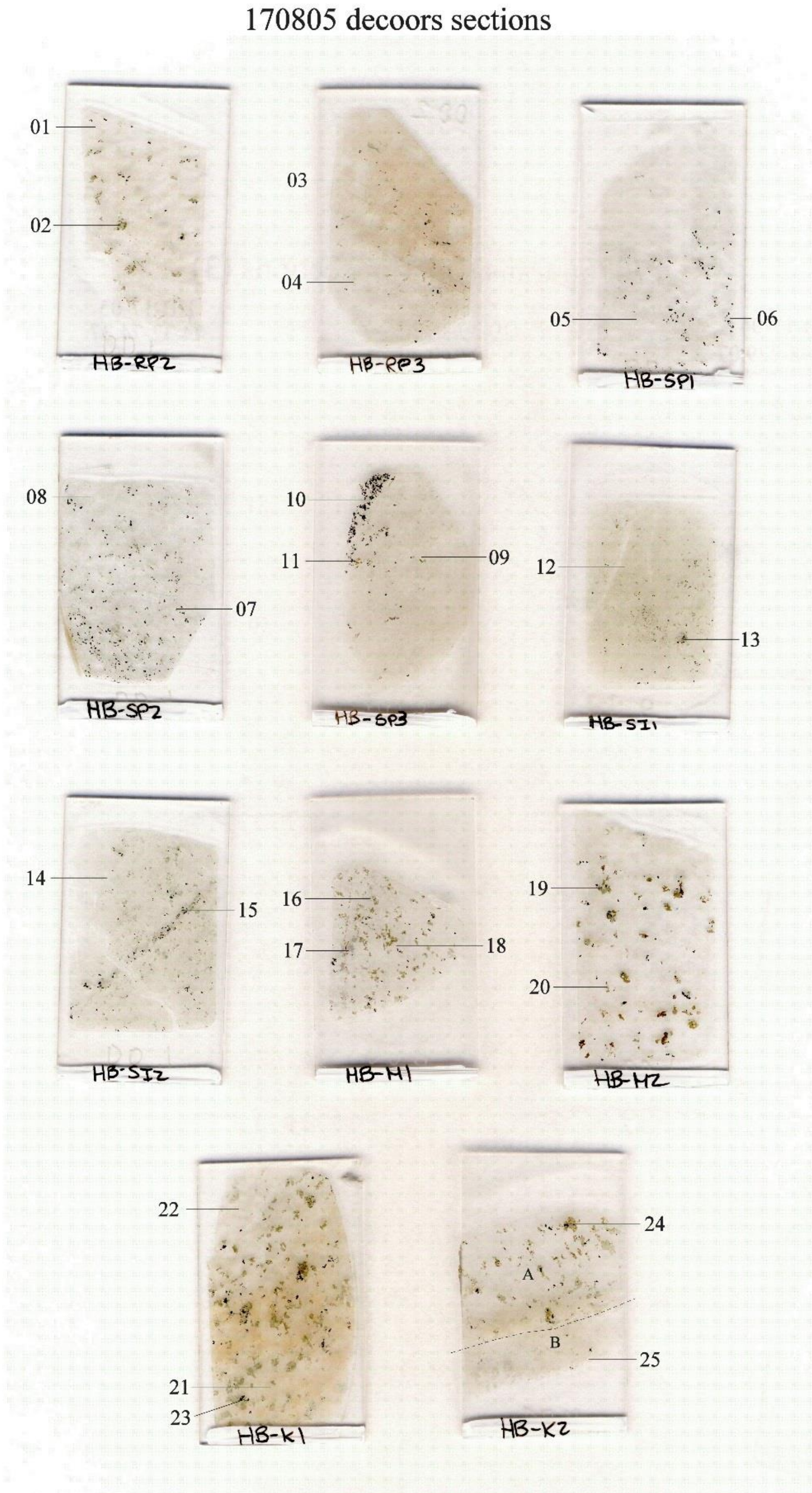

FIGURE 5 THIN SECTIONS

HB-RP2

Sample HB-RP2 Metamorphosed Leucocratic Granite

Inclusions: Plagioclase-Actinolite-K-feldspar-Biotite

Granite is dominated by medium grained aggregates of K-feldspar with lesser plagioclase and quartz, and contains scattered, much finer grained aggregates of these minerals. The latter commonly are associated with mafic clusters dominated by plagioclase and actinolite with lesser K-feldspar and biotite (altered partly to chlorite), and minor ilmenite, magnetite, sphene, apatite and epidote. Many of the mafic clusters are interpreted as inclusions of metamorphosed wall rock.

mineral	**percentage**	**main grain size range (mm)**	
K-feldspar	60-65%	0.5-1.5;	
quartz	12-15	0.3-1.3	
plagioclase	15-17	1-1.5; 0.05-0.2	
hornblende	4- 5	0.5-1; 0.1-0.2	(a few grains up to 1.5 mm long)
biotite	0.5	0.1-0.4	
ilmenite	0.3	0.05-0.2	
magnetite	0.2	0.1-0.25	
sphene	0.2	0.05-0.1	(a few up to 0.4 mm)
apatite	0.1	0.05-0.1	(a few from 0.15-0.3 mm long)
calcite	trace	0.1-0.15	
zircon	trace	0.05-0.1	
pyrite	*	0.01	

K-feldspar forms anhedral to subhedral grains that vary widely in size. A few large grains contain simple Carlsbad twins. Many grains are perthitic and many contain dusty brown hematite.

Quartz forms anhedral grains intergrown coarsely with feldspars.

Plagioclase forms subhedral prismatic grains (1-1.5 mm), a few of which have overgrowths of perthitic K-feldspar. Others are corroded by K-feldspar and commonly have a thin albitic(?) rim against K-feldspar. Alteration ranges from very slight to moderate to sericite and locally slightly to epidote and dusty opaque hematite. Plagioclase also form much smaller equant grains (0.05-0.15 mm) intergrown in mafic clusters and locally disseminated in K-feldspar.

Mafic grains are concentrated strongly in clusters up to 2 mm in size, commonly intergrown with plagioclase and less commonly K-feldspar grains that commonly are much finer than elsewhere in the rock. Some of these at least may represent strongly metamorphosed mafic/intermediate inclusions. Some mafic patches may be part of the main rock rather than being inclusions.

Actinolite (probably secondary after hornblende) forms anhedral equant to locally prismatic grains with pleochroism from pale to light green.

Biotite occurs in some mafic clusters, alone or with actinolite. Biotite is pleochroic from pale to light/medium brown. Some grains were altered partly to completely to pseudomorphic pale green chlorite and minor sphene.

Ilmenite, commonly associated with sphene, occurs in some mafic clusters as disseminated grains, in part with exsolution lenses of hematite/magnetite. Locally it forms trains of smaller anhedral grains, some of which are enclosed in an overgrowth or reaction-rim of sphene.

Magnetite forms disseminated grains, mainly in mafic clusters.

Sphene forms anhedral grains in mafic clusters and also occurs as overgrowths on some ilmenite and some magnetite grains.

Apatite forms anhedral, equant grains, mainly in mafic clusters.

Calcite forms two adjacent elongate grains included in a patch of sphene that borders magnetite.

Zircon forms anhedral grains, mainly in mafic clusters.

Pyrite forms a few equant grains away from mafic clusters.

Sample HB-RP2 is of metamorphosed leucocratic granite that is dominated by medium grained aggregates of K-feldspar with lesser plagioclase and quartz, and contains scattered, much finer grained aggregates of these minerals. The latter commonly are associated with mafic clusters dominated by plagioclase and actinolite with lesser K-feldspar and biotite (altered partly to chlorite), and minor ilmenite, magnetite, sphene, apatite and epidote. Many of the mafic clusters are interpreted as inclusions of metamorphosed wall rock.

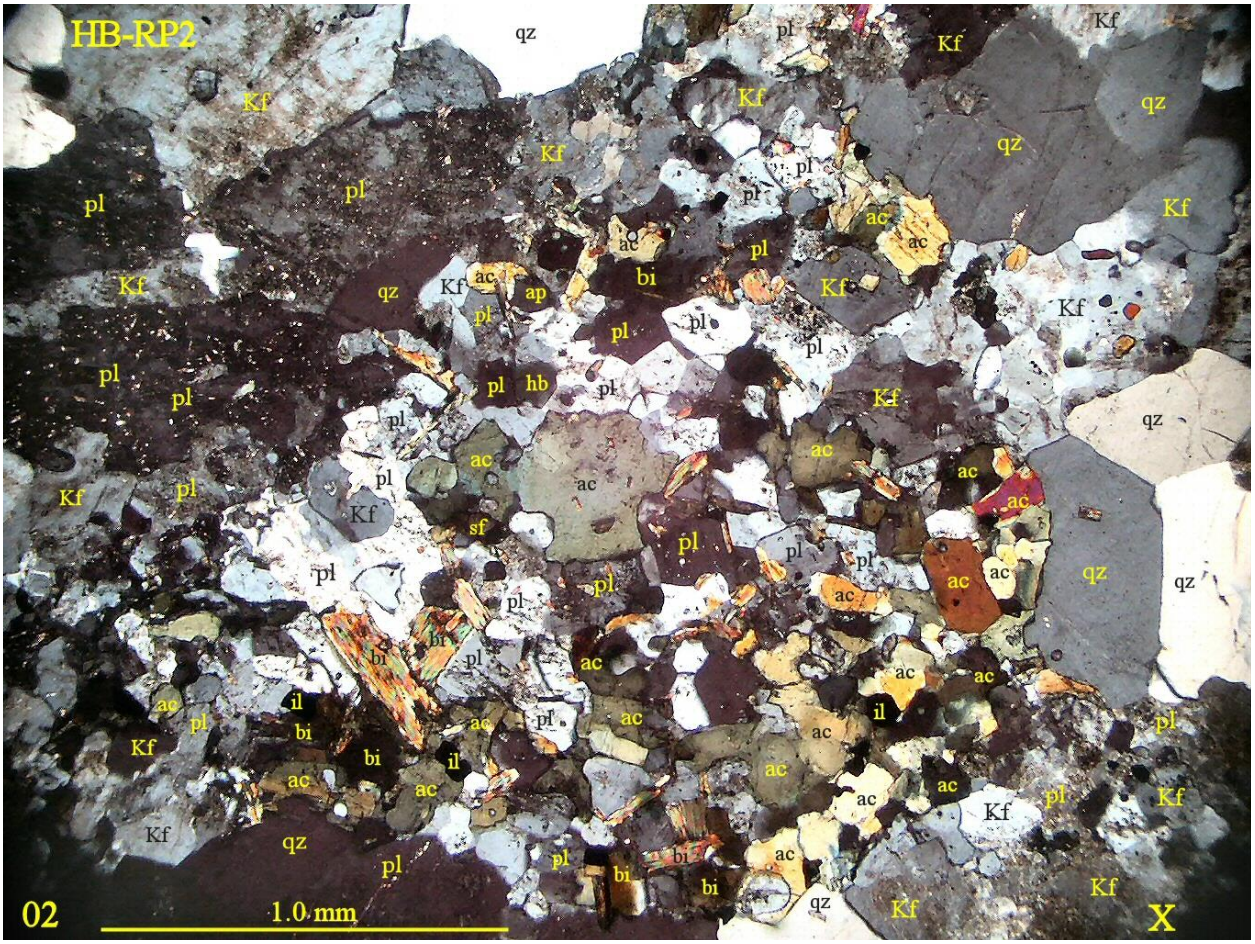

FIGURE 6 17805-02

HB-RP3

Sample HB-RP3 Hypabyssal Porphyritic Trachyte/Rhyolite

Veinlets: Calcite, Epidote-Chlorite

Phenocrysts of plagioclase are set in a much finer grained groundmass dominated by K-feldspar with lesser plagioclase and quartz, with accessory biotite (in part altered to chlorite) and minor magnetite, apatite, and epidote. A few porphyroblast are of tremolite/actinolite that was altered partly to tremolite. Minor veinlets are of calcite and epidote-chlorite.

mineral	percentage	main grain size range (mm)
phenocrysts		
plagioclase	7- 8%	1- 2
groundmass		

K-feldspar	70-75	0.05-0.1	(a few up to 0.5 mm)
plagioclase	10-12	0.05-0.1	
quartz	7- 8	0.03-0.07	(a few up to 0.5 mm)
biotite	2- 3	0.1-0.3	
magnetite	0.3	0.07-0.2	
tremolite/actinolite	0.2	0.1-0.2	
apatite	0.2	0.1-0.15	
epidote	0.2	0.07-0.15	
calcite	minor	0.05-0.08	
sphene	trace	0.07-0.1	
veinlets			
1) calcite	minor	0.03-0.05; poikilitic grains up to 1 mm	
2) epidote-chlorite	minor	0.01-0.015	

Plagioclase forms subhedral to anhedral, equant to prismatic phenocrysts that were altered slightly to moderately to dusty sericite and hematite.

Tremolite/actinolite forms one skeletal grain (with a reaction rim locally of tremolite) intergrown with a plagioclase phenocryst and a few skeletal grains intergrown with groundmass feldspars and lesser quartz.

In the groundmass, K-feldspar forms equant anhedral grains that were altered moderately to dusty hematite. Plagioclase forms anhedral grains intergrown with K-feldspar. Quartz forms mainly rounded to oval-shaped grains interstitial to feldspars, and a few coarser grains and clusters.

Biotite forms disseminated, somewhat ragged flakes and a few clusters of flakes. Fresh biotite is pleochroic from pale to medium orangish brown. In many patches, biotite was altered completely to pseudomorphic, pale green chlorite with minor epidote.

Tremolite/actinolite forms scattered equant grains with pleochroism from pale to light green.

Magnetite forms disseminated equant grains and clusters of a few grains, in part associated with tremolite/actinolite and locally with epidote.

Apatite forms disseminated subhedral to anhedral prismatic grains.

Epidote forms scattered grains, mainly associated with plagioclase or magnetite.

Sphene forms scattered grains mainly associated with biotite.

Calcite forms a few patches, mainly associated with altered biotite.

A few patches up to 1.5 mm long by 0.5 mm wide are of very fine grained plagioclase (altered moderately to sericite) and biotite, with minor magnetite. These might be inclusions of wall rock.

A discontinuous veinlet up to 0.08 mm wide is of calcite. A discontinuous vein-like replacement zone contains several poikilitic calcite grains intergrown mainly with groundmass quartz.

A few wispy, subparallel, slightly irregular veinlets up to 0.03 mm wide are of epidote-chlorite.

Sample HB-RP3 is of hypabyssal porphyritic trachyte/rhyolite that contains phenocrysts of plagioclase in a much finer grained groundmass dominated by K-feldspar with lesser plagioclase and quartz, with accessory biotite (in part altered to chlorite) and minor magnetite, apatite, and epidote. A few porphyroblast are of tremolite/actinolite that was altered partly to tremolite. Minor veinlets are of calcite and epidote-chlorite.

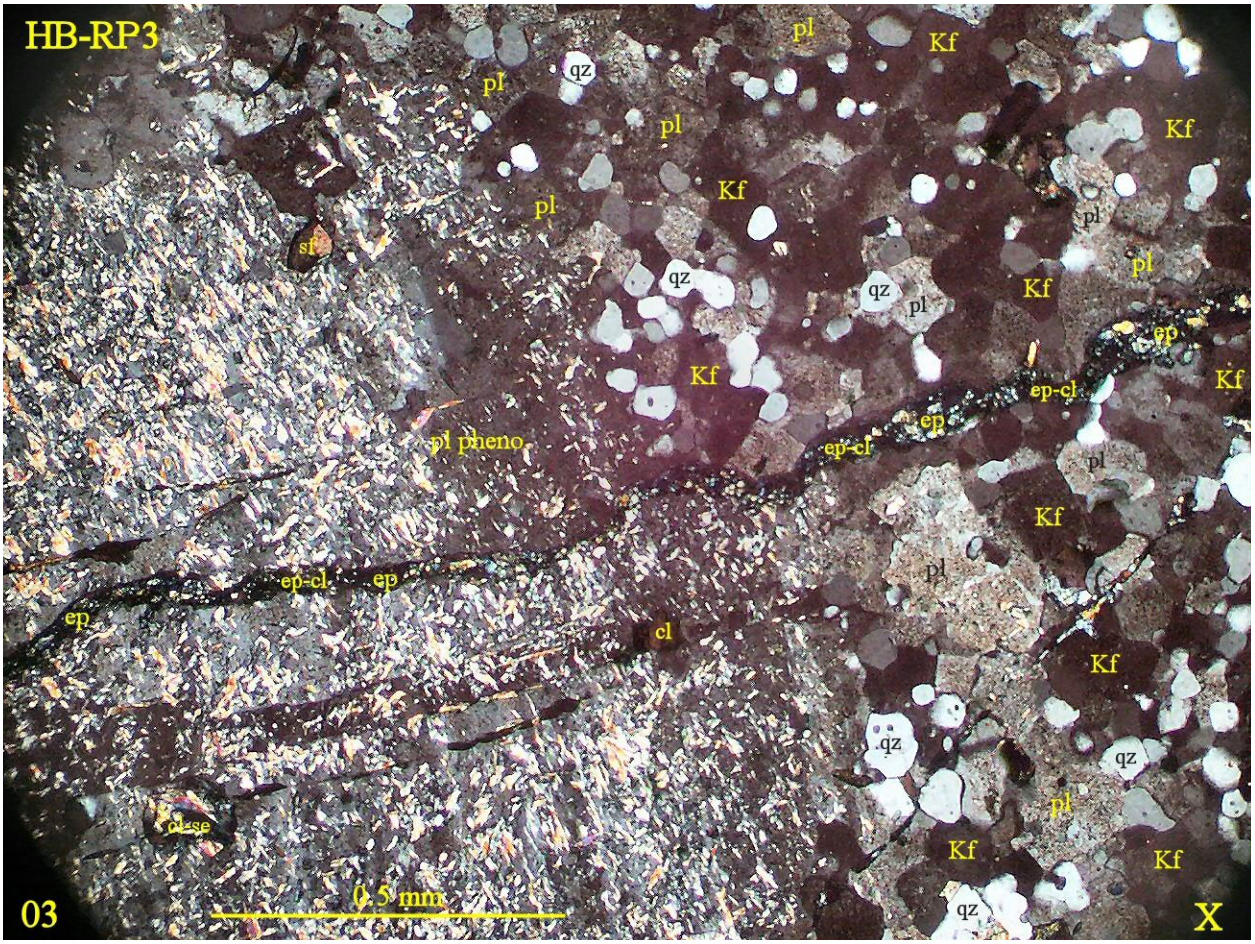

FIGURE 7 170805-3

FIGURE 8 170805-4

HB-SP1

Sample HB-SP1 Quartz Diorite

Alteration: Sericite/Muscovite-Pyrite-Epidote

The sample is of strongly altered quartz diorite dominated by plagioclase (altered slightly to completely to sericite/muscovite) and quartz, with disseminated grains of pyrite, mainly in one half of the section, and disseminated patches of epidote, with minor patches of calcite and of rutile/leucoxene. Quartz and plagioclase are segregated moderately into quartz-rich and plagioclase-rich patches of the order of a few mm across.

mineral	percentage	main grain size range (mm)	
plagioclase	40-45%	0.2-0.5	
quartz	35-40	0.3-0.5	(a few up to 0.8 mm long)

sericite/muscovite	10-12	0.05-0.2	
pyrite	2- 3	0.1-0.2	
epidote	2- 3	0.1-0.2	(a few up to 0.3 mm long)
calcite	0.2	0.03-0.1	
rutile/leucoxene	0.1	0.02-0.07	
sphene	trace	0.03-0.05	
zircon	trace	0.02-0.03	
chalcopyrite	trace	0.01-0.05	
pyrrhotite	trace	0.01-0.04	

Plagioclase forms anhedral, equant to slightly elongated grains that were altered slightly to strongly to sericite/muscovite and in places completely to sericite. Some muscovite aggregates have a radiating texture.

Quartz forms equant grains in part interstitial to plagioclase, and in part in a submosaic texture with minor interstitial plagioclase and sericite/muscovite.

Sericite/muscovite forms disseminated patches, in part after plagioclase and in part of uncertain parentage.

Pyrite forms disseminated grains and clusters of a few grains, mainly in one half of the section. A few grains contain an inclusion up to 0.04 mm long of pyrrhotite and a few grains contain an inclusion of chalcopyrite up to 0.05 mm across.

Epidote form disseminated patches up to 0.8 mm in size.

Calcite forms disseminated grains and a few patches up to 0.3 mm across with plagioclase and interstitial grains in quartz-rich patches.

Rutile is concentrated in one elongate lens 2.5 mm long as clusters of anhedral grains. It also forms scattered anhedral grains and a few smaller clusters. It has a deep orangish brown colour. Some small patches were altered completely to semi-opaque leucoxene.

Sphene forms a few equant grains.

Zircon forms a few anhedral equant grains.

Sample HB-SP1 is of strongly altered quartz diorite dominated by plagioclase (altered slightly to completely to sericite/muscovite) and quartz, with disseminated grains of pyrite, mainly in one half of the section, and disseminated patches of epidote, with minor patches of calcite and of rutile/leucoxene. Quartz and plagioclase are segregated moderately into quartz-rich and plagioclase-rich patches of the order of a few mm across.

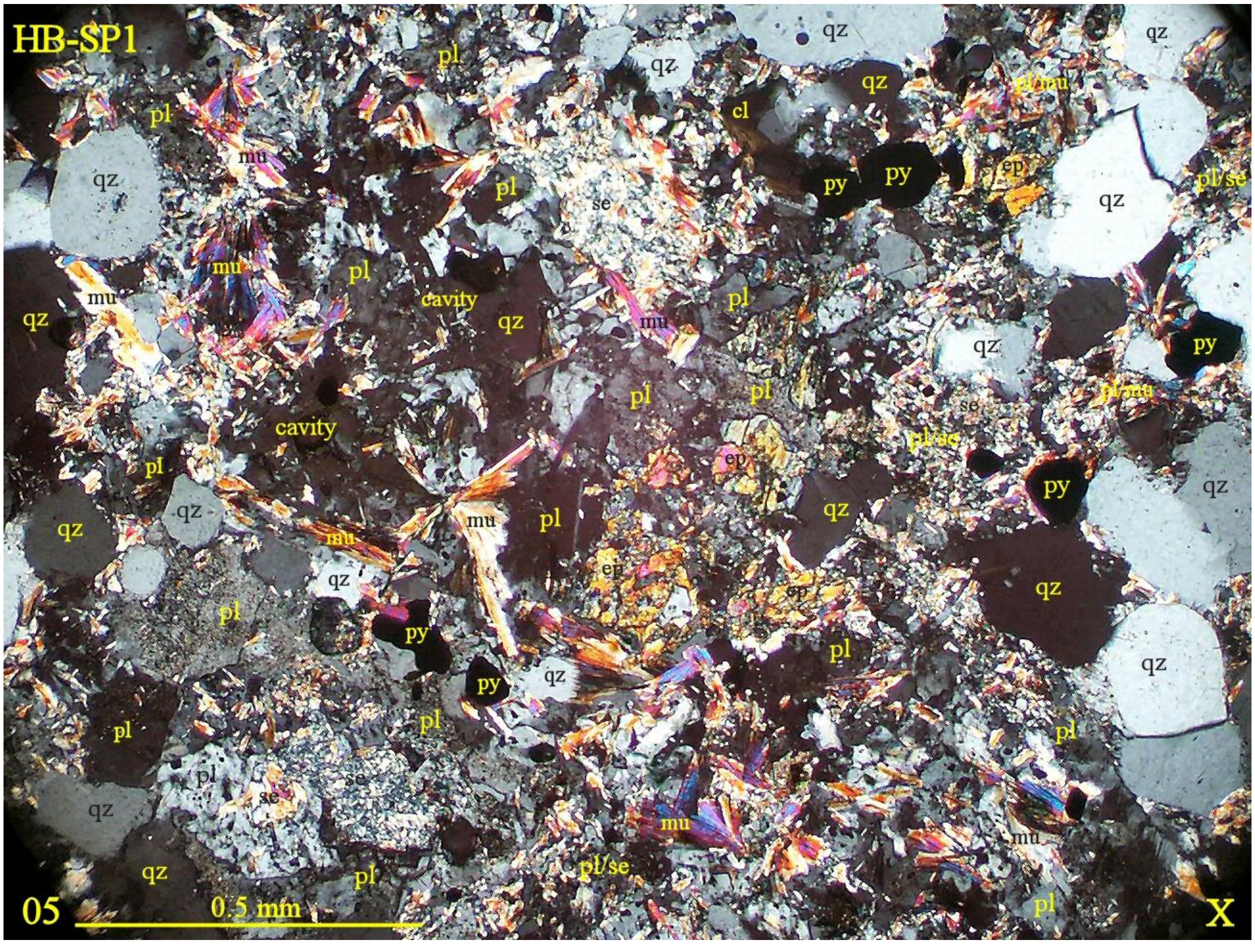

FIGURE 9 170805-05

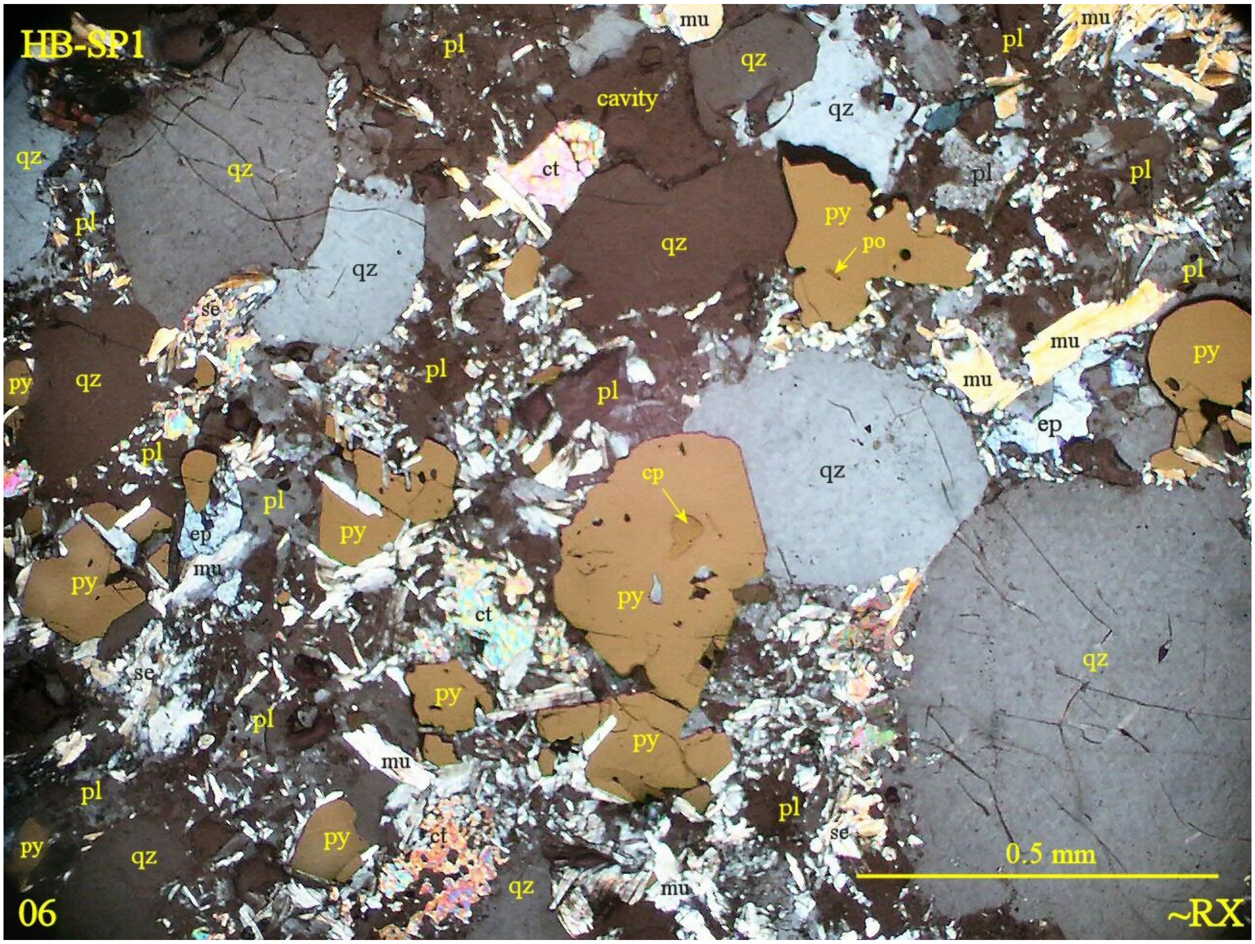

FIGURE 10 170805-06

HP-SP2

Sample HB-SP2 Quartz Diorite

Alteration: Quartz-Sericite/Muscovite-Chlorite-Pyrite

The sample is of altered quartz diorite dominated by plagioclase (altered slightly to completely to sericite and locally to muscovite) and lesser quartz, with accessory biotite (altered completely to pseudomorphic chlorite or less commonly to pseudomorphic muscovite, both with minor Ti-oxide spots) and pyrite, and minor rutile, apatite, and tourmaline. A diffuse discontinuous veinlet is of calcite.

mineral	**percentage**	**main grain size range (mm)**	
plagioclase	45-50%	0.2-0.5	
quartz	30-35	0.2-0.7	
chlorite	5- 7	0.2-0.5	(a few up to 0.8 mm long)

pyrite	3- 4	0.05-0.3	(a few up to 0.5 mm across)
muscovite/sericite	3- 4	0.07-0.15	
K-feldspar	1- 2	0.2-0.4	
rutile	0.2	0.03-0.07	
epidote	minor	0.05-0.15	
apatite	minor	0.07-0.1	
tourmaline	minor	0.5	
chalcopyrite	trace	0.01-0.05	(one grain 0.09 mm long)
pyrrhotite	trace	0.01-0.02	(one grain 0.13 mm long)
zircon	trace	0.05-0.07	
veinlet			
1) calcite	0.2	0.1-0.15	

Plagioclase forms anhedral equant grains that were altered variably. Some grains are relatively fresh, some were altered slightly to moderately to patches of sericite, and some were altered completely to sericite. The pattern is unusual, and it is possible that some of the least altered grains are of K-feldspar; however, the pale yellow stain on the offcut block suggests that K-feldspar is at most an accessory phase.

Quartz forms equant grains intergrown coarsely with plagioclase.

Chlorite forms disseminated flakes and clusters of flakes with a pale green colour and weak pleochroism. It probably is pseudomorphic after biotite. Some flakes consist of chlorite and muscovite, and in strongly altered zones, some grains are dominated by muscovite.

Pyrite forms disseminated anhedral to subhedral grains. Several grains contain a blebby to elongate inclusion of chalcopyrite or pyrrhotite.

Muscovite forms disseminated flakes and a few radiating clusters of flakes, probably mainly as a replacement of plagioclase in which original textures were destroyed.

Rutile forms disseminated subhedral to anhedral grains and is concentrated in a few open clusters in which it is intergrown with chlorite.

Epidote forms scattered grains, probably mainly secondary after plagioclase.

Apatite forms disseminated stubby prismatic grains.

Tourmaline forms one stubby prismatic grain with a light yellowish green to light/medium green to bluish green pleochroism.

Zircon forms disseminated, subhedral stubby prismatic grains, mainly associated with chlorite.

Chalcopyrite also forms a few equant grains 0.01-0.015 mm across in altered plagioclase.

A diffuse vein like lens up to 0.3 mm wide is of calcite.

Sample HB-SP2 is of altered quartz diorite dominated by plagioclase (altered slightly to completely to sericite and locally to muscovite) and lesser quartz, with accessory biotite (altered completely to pseudomorphic chlorite or less commonly to pseudomorphic muscovite, both with minor Ti-oxide spots) and pyrite, and minor rutile, apatite, and tourmaline. A diffuse discontinuous veinlet is of calcite.

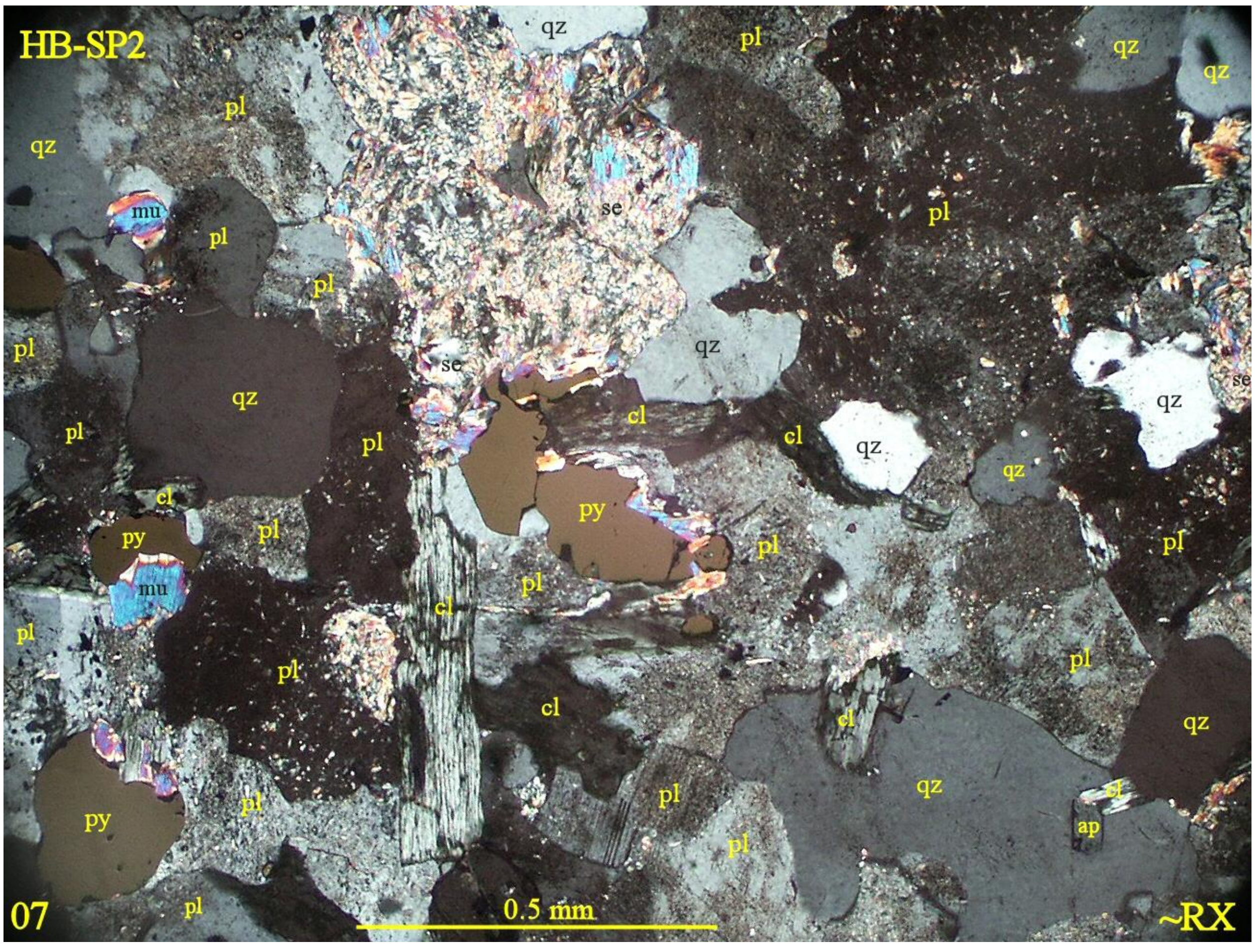

FIGURE 11 170805-07

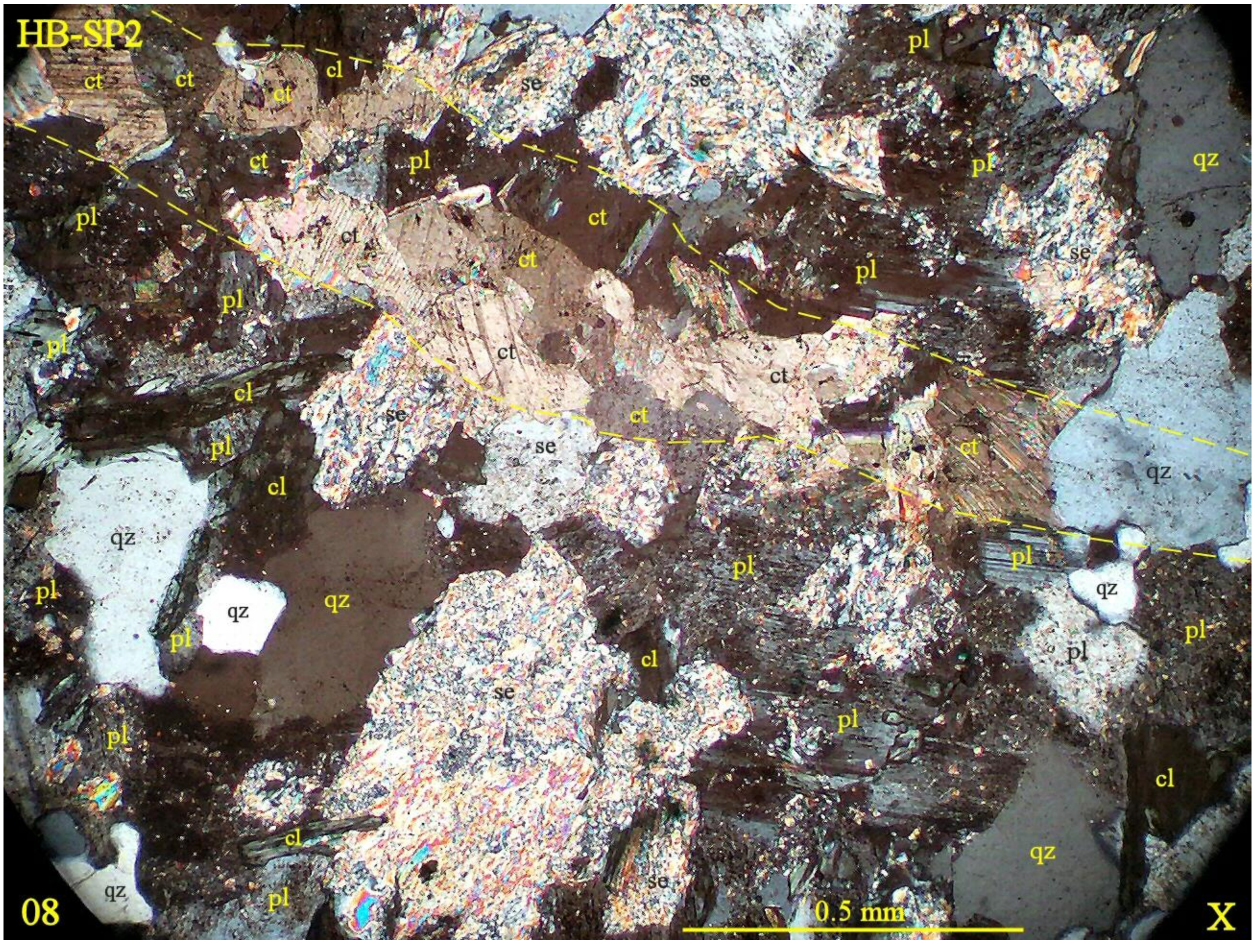

FIGURE 12 170805-08

HB-SP3

Sample HB-SP3 Altered Quartz Diorite

Alteration: Sericite-Muscovite-Pyrite-Calcite-(Epidote-Chlorite)

The sample is of strongly altered quartz diorite dominated by plagioclase (altered slightly to strongly to sericite, with locally abundant patches of muscovite, calcite, and minor epidote) with lesser quartz, and minor biotite (altered completely to pseudomorphic chlorite-[muscovite] and locally to pseudomorphic muscovite-leucoxene), clusters of rutile, patches of chlorite, and disseminated pyrite. A band along one side contains abundant pyrite intergrown with altered biotite and plagioclase.

mineral	percentage	main grain size range (mm)	
plagioclase	60-65%	0.3-0.7	(a few up to 1 mm long)
quartz	25-30	0.2-0.8	(a few up to 1 mm)

pyrite	5- 7	0.05-0.3	(a few up to 0.5 mm)
biotite	1- 2	0.5-1	
rutile	1- 2	0.03-0.1	
chlorite	0.3	0.05-0.2	
sphene/leucoxene	0.1	0.07-0.15	
pyrrhotite	trace	0.01-0.03	
chalcopyrite	trace	0.01-0.03	(one 0.05 mm across)

Plagioclase forms aggregates of anhedral grains intergrown coarsely with patches of quartz-rich rock. Alteration is very variable. Some grains were altered only slightly to sericite/muscovite-(calcite), others were altered strongly to sericite and still others were altered moderately to strongly to muscovite/sericite-calcite). Some muscovite aggregates have a radiating texture. Epidote forms scattered grains and clusters of a few grains, mainly as an alteration of plagioclase.

Quartz forms disseminated, equant grains and clusters of a few to several grains, in part with minor to moderately abundant interstitial altered plagioclase.

Pyrite is concentrated strongly in a band along one side of the section as disseminated anhedral grains intergrown with altered plagioclase and chlorite. It also forms more widely disseminated grains nearby and is relatively rare further from the main band. A few grains contain a blebby inclusion of pyrrhotite or chalcopyrite, and one grain contains an inclusion of each.

Biotite (altered completely to chlorite with minor lenses of muscovite parallel to cleavage planes) is intergrown with pyrite in the main pyrite-rich band. Biotite (altered completely to minor pseudomorphic muscovite and abundant leucoxene) also forms one subhedral flake away from pyrite.

Rutile is concentrated strongly in several irregular to lensy patches up to 2 mm in size in which it is intergrown mainly with plagioclase and locally with pyrite.

Chlorite forms a few equant patches of a few to several flakes with a pale green colour; this chlorite is not pseudomorphic after biotite.

Sphene (?, altered completely to leucoxene) forms disseminated grains.

Sample HB-SP3 is of strongly altered quartz diorite dominated by plagioclase (altered slightly to strongly to sericite, with locally abundant patches of muscovite, calcite, and minor epidote) with lesser quartz, and minor biotite (altered completely to pseudomorphic chlorite-[muscovite] and locally to pseudomorphic muscovite-leucoxene), clusters of rutile, patches of chlorite, and disseminated pyrite. A band along one side contains abundant pyrite intergrown with altered biotite and plagioclase.

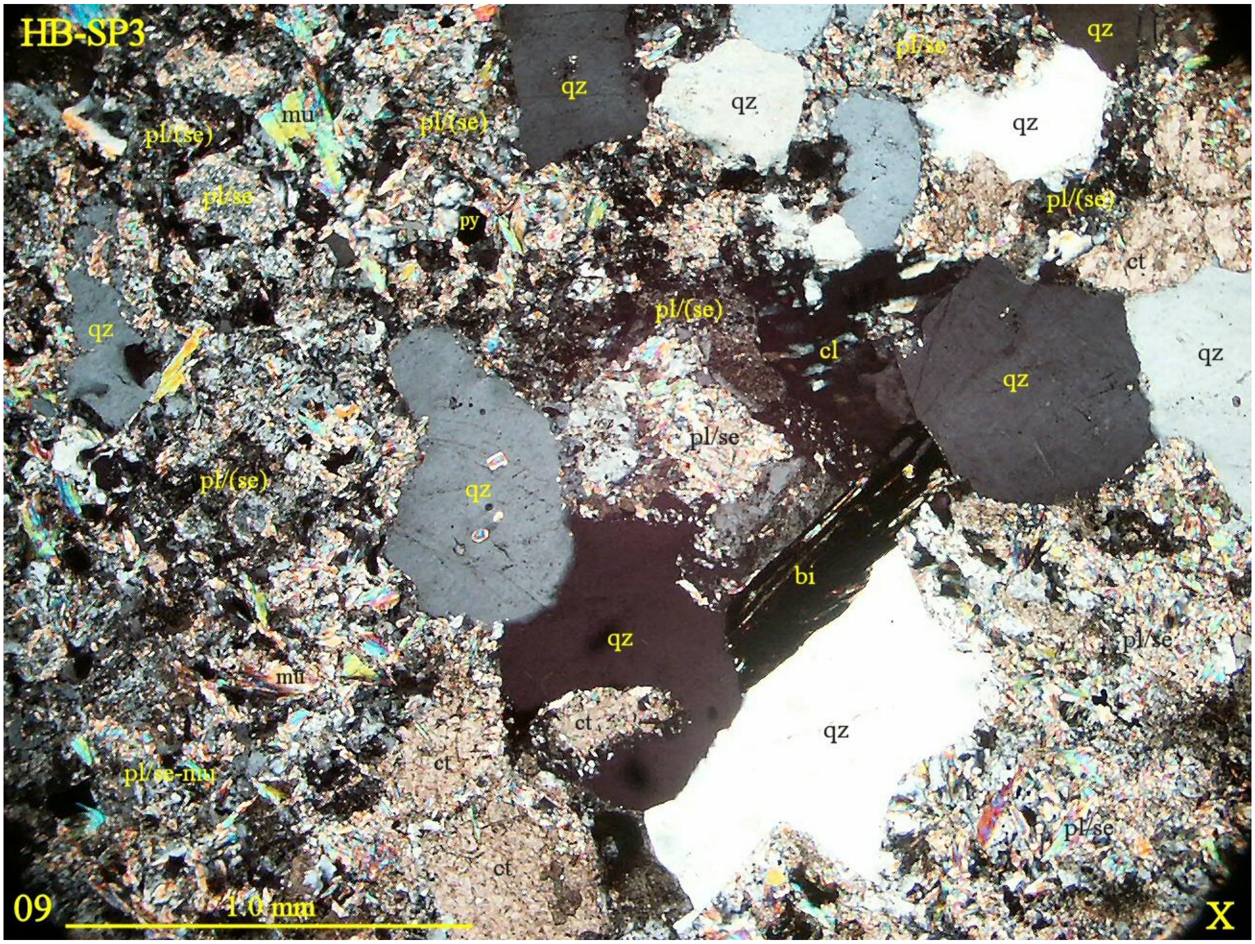

FIGURE 13 170805-09

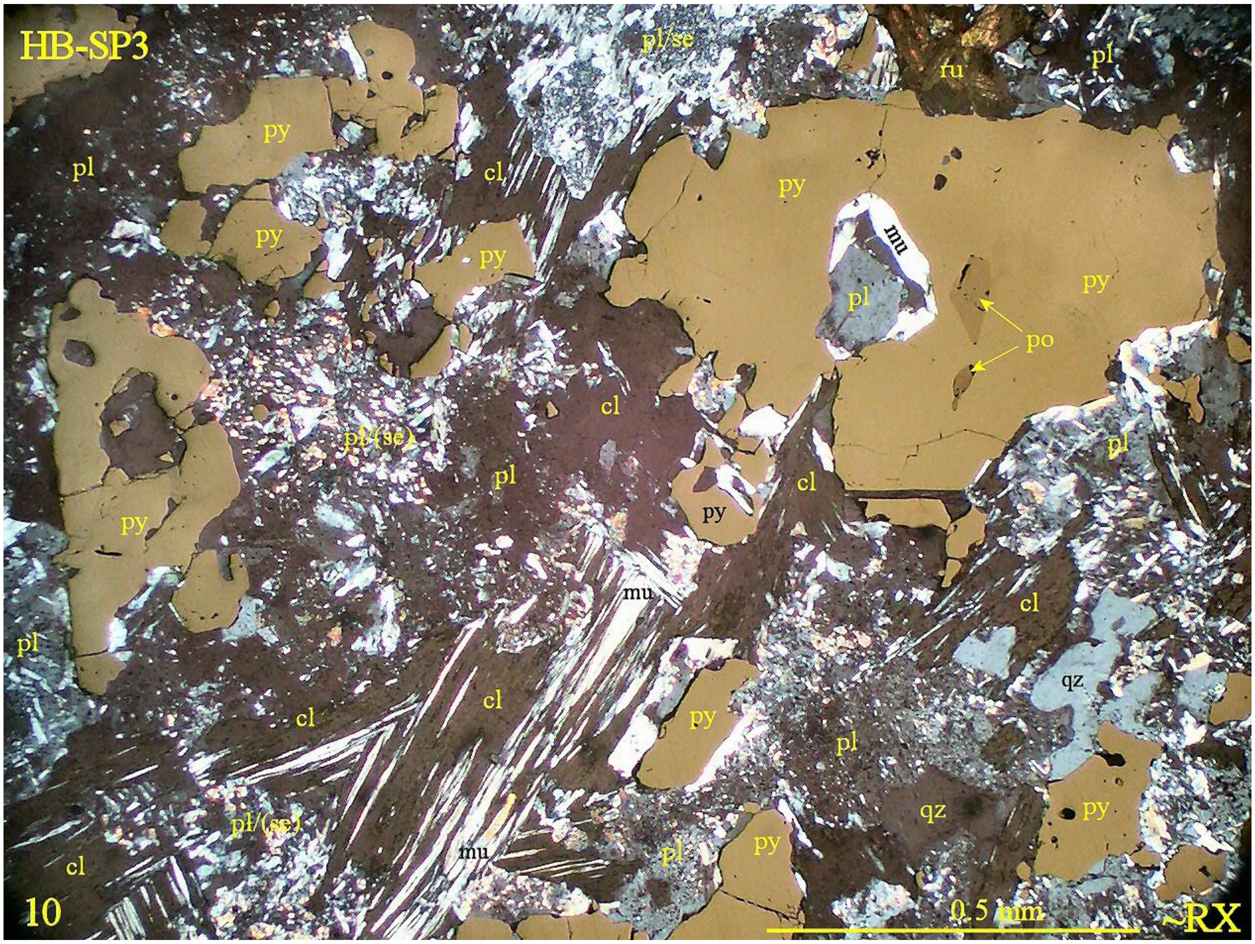

FIGURE 14 170805-10

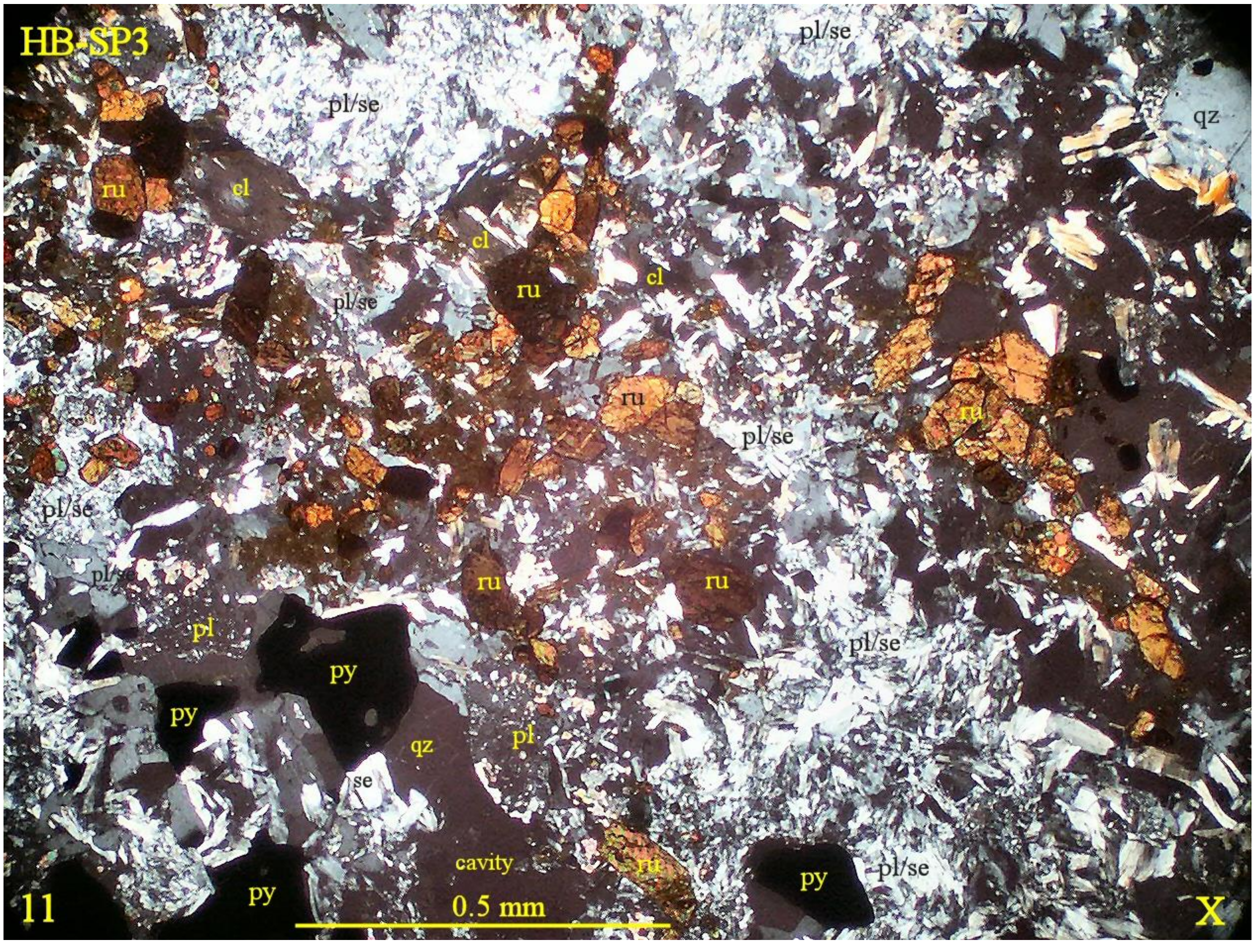

FIGURE 15 170805-11

HB-SI1

Sample HB-SI1 Hypabyssal Porphyritic Latite Dyke

Alteration: Sericite-Calcite-Chlorite-Pyrite)

Veinlets: Calcite

Disseminated anhedral to subhedral, commonly prismatic phenocrysts of plagioclase and clusters of anhedral plagioclase phenocrysts (both altered slightly to locally moderately to sericite-calcite-(epidote) are set in a groundmass of fresh plagioclase with disseminated grains of biotite (altered completely to chlorite), calcite, and epidote, and minor disseminated grains of pyrite and of rutile (altered moderately to strongly to leucoxene). A set of subparallel veinlets and a few irregular diffuse veinlike patches are of calcite.

mineral	percentage	main grain size range (mm)
phenocrysts		

plagioclase	15-17%	0.5-1.5	
groundmass			
plagioclase	70-75	0.1-0.2	
biotite/chlorite	4- 5	0.15-0.3	(a few up to 0.5 mm long)
calcite	3- 4	0.05-0.1	
pyrite	0.5	0.05-0.15	
epidote	0.2	0.1-0.4	
rutile/leucoxene	0.2	0.04-0.07	
chalcopyrite	trace	0.01-0.03	(one grain 0.0 mm across)
veinlets			
1) calcite	3- 4	0.03-0.1	

Plagioclase forms anhedral to subhedral prismatic phenocrysts and clusters of phenocrysts that are altered slightly to sericite, calcite, and epidote, and locally strongly to sericite, with or without calcite.

In the groundmass, plagioclase forms equant to stubby prismatic grains that contain minor to accessory disseminated grains and clusters of each of sericite, calcite, chlorite, and epidote.

Biotite (altered completely to pseudomorphic chlorite and minor patches of leucoxene) forms disseminated flakes.

Calcite forms disseminated replacement patches.

Pyrite forms disseminated, anhedral to subhedral grains, several of which contain a blebby inclusion of chalcopyrite.

Epidote forms a few patches up to 0.4 mm in size, probably mainly as an alteration of plagioclase.

Rutile (altered slightly to strongly to leucoxene) forms disseminated subhedral grains and ragged patches, mainly less than 0.07 mm in size. Some of the grains altered completely to leucoxene may originally have been of sphene.

Chalcopyrite also forms a few grains in plagioclase away from pyrite.

Calcite forms a set of subparallel veinlets from 0.05-0.2 mm wide and locally up to 0.5 mm wide.

Sample HB-SI1 is of hypabyssal porphyritic latite dyke that contains disseminated anhedral to subhedral, commonly prismatic phenocrysts of plagioclase and clusters of anhedral plagioclase phenocrysts (both altered slightly to locally moderately to sericite-calcite-(epidote). These are set in a groundmass of fresh plagioclase with disseminated grains of biotite (altered completely to chlorite), calcite, and epidote, and minor disseminated grains of pyrite and of rutile (altered moderately to strongly to leucoxene). A set of subparallel veinlets and a few irregular diffuse veinlike patches are of calcite.

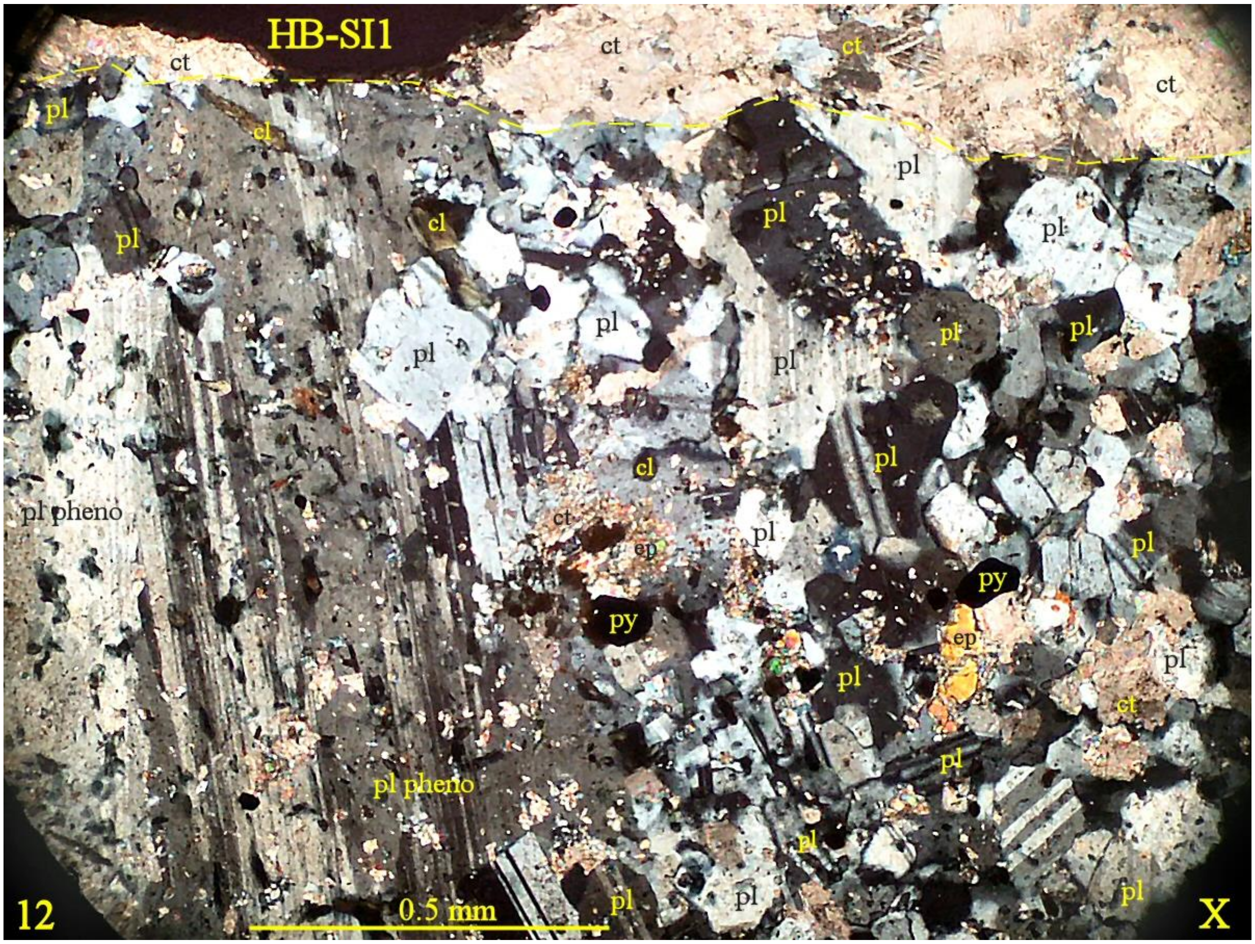

FIGURE 16 170805-12

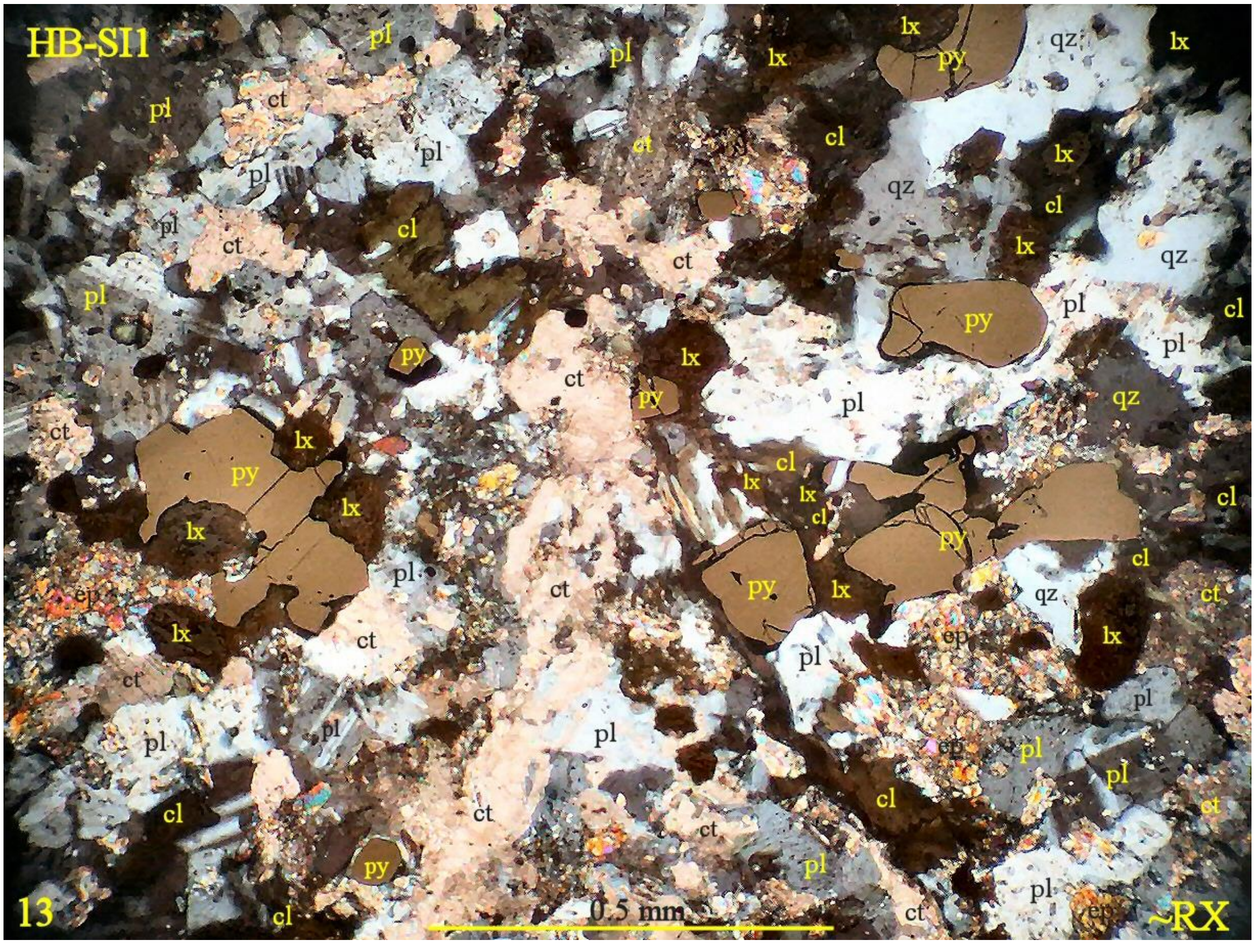

FIGURE 17 170805-13

HB-SI2

Sample HB-SI2 Hypabyssal Porphyritic Latite

Alteration: Chlorite-Calcite-Epidote-Pyrite

Vein, Veinlets: Chlorite-Calcite-Sericite-Pyrite-(Epidote-Plagioclase); Calcite

Phenocrysts of plagioclase are set in a groundmass of much finer grained plagioclase with accessory chlorite and minor pyrite, rutile (altered strongly to leucoxene). Chalcopyrite and pyrrhotite form minor blebby to irregular inclusions in pyrite. A diffuse vein up to 1.5 mm wide is of chlorite-calcite-sericite-pyrite-epidote-plagioclase. Several veinlets are of calcite.

mineral	percentage	main grain size range (mm)	
phenocrysts			
plagioclase	12-15%	1- 2	(a few up to 2.5 mm long)

groundmass

plagioclase	65-70	0.05-0.15	(a few up to 0.2 mm across)
biotite/chlorite	3- 4	0.2-0.5	(a few up to 0.8 mm long)
calcite	2- 3	0.05-0.15	(a few grains up to 0.8 mm)
epidote	1- 2	0.02-0.05	(a few up to 0.8 mm across)
pyrite	1- 2	0.05-0.15	(a few up to 0.3 mm long)
rutile/leucoxene	0.3	0.05-0.08	(a few up to 0.15 mm)
chalcopyrite	trace	0.01-0.03	(a few up to 0.05 mm)
pyrrhotite	trace	0.01-0.03	
zircon	trace	0.01-0.03	

vein, veinlets

1) chlorite-calcite-sericite-pyrite-epidote-plagioclase	3- 4	0.05-0.3	
2) calcite	2- 3	0.03-0.15	

Plagioclase forms subhedral prismatic phenocrysts, many of which have disseminated inclusions of one or more of chlorite, calcite, epidote, sericite, and pyrite.

In the groundmass, plagioclase forms equant grains that are mainly fresh.

Biotite (altered completely to pseudomorphic chlorite with ragged patches of leucoxene) forms scattered equant flakes.

Calcite forms disseminated patches, mainly from 0.05-0.15 mm in size, and a few porphyroblastic grains up to 1 mm across.

Epidote forms disseminated patches, mainly from 0.1-0.2 mm in size and locally up to 0.4 mm across. In some of theses it is intergrown with calcite and/or sericite.

Pyrite forms disseminated, mainly anhedral grains, and is concentrated in a veinlike zone up to 1 mm wide, in which it is associated with

Rutile forms disseminated anhedral to subhedral patches that were altered completely to leucoxene.

Zircon forms a few equant grains.

A diffuse vein up to 1 mm wide consists of chlorite, calcite, sericite, pyrite, plagioclase, and epidote in a variety of textures.

Several veinlets up to 0.5 mm wide are of calcite.

Sample HB-SI2 is of hypabyssal porphyritic latite that contains phenocrysts of plagioclase in a groundmass of much finer grained plagioclase with accessory chlorite and minor pyrite, rutile (altered strongly to leucoxene). Chalcopyrite and pyrrhotite form minor blebby to irregular inclusions in pyrite. A diffuse vein up to 1.5 mm wide is of chlorite-calcite-sericite-pyrite-epidote-plagioclase. Several veinlets are of calcite.

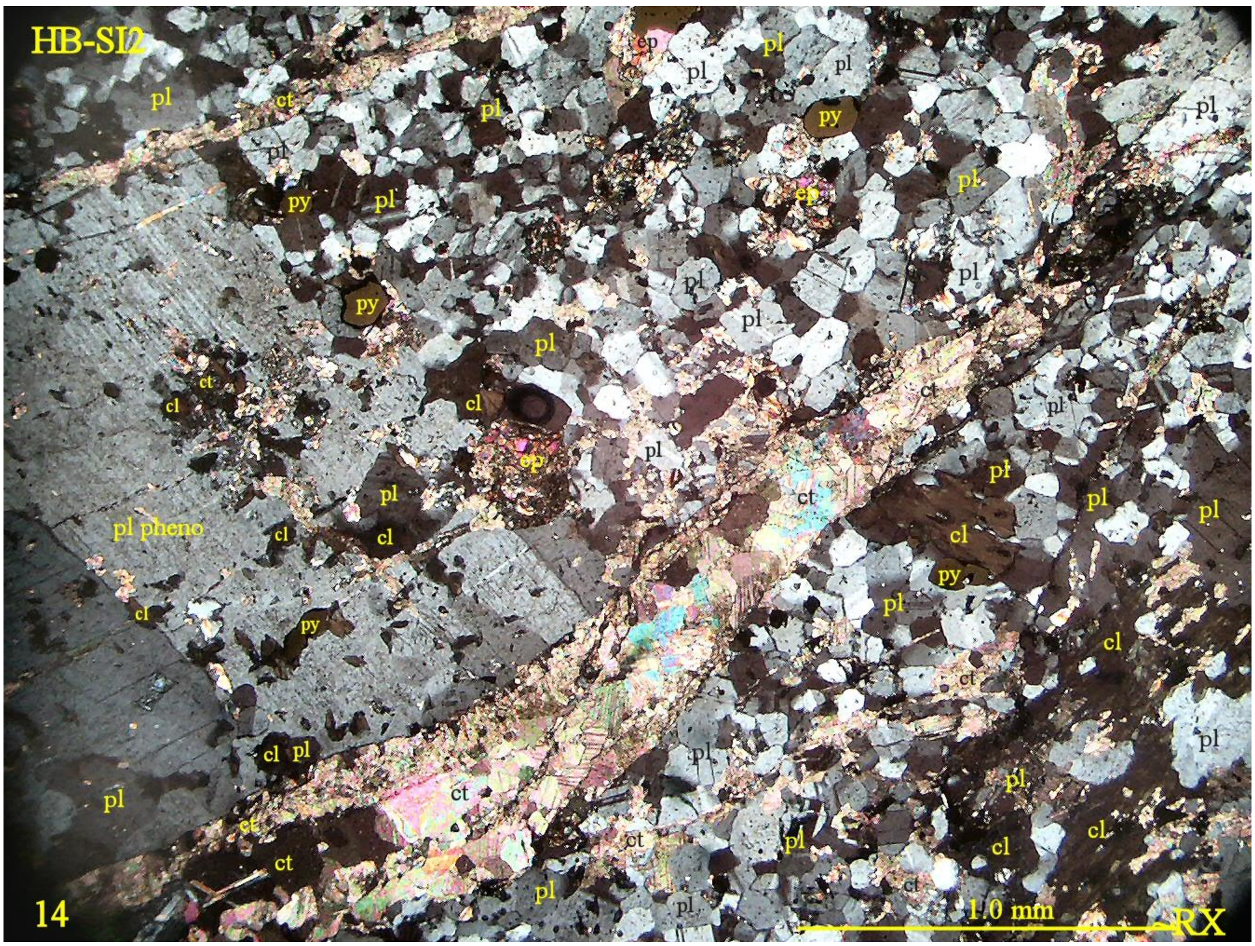

FIGURE 18 170805-14

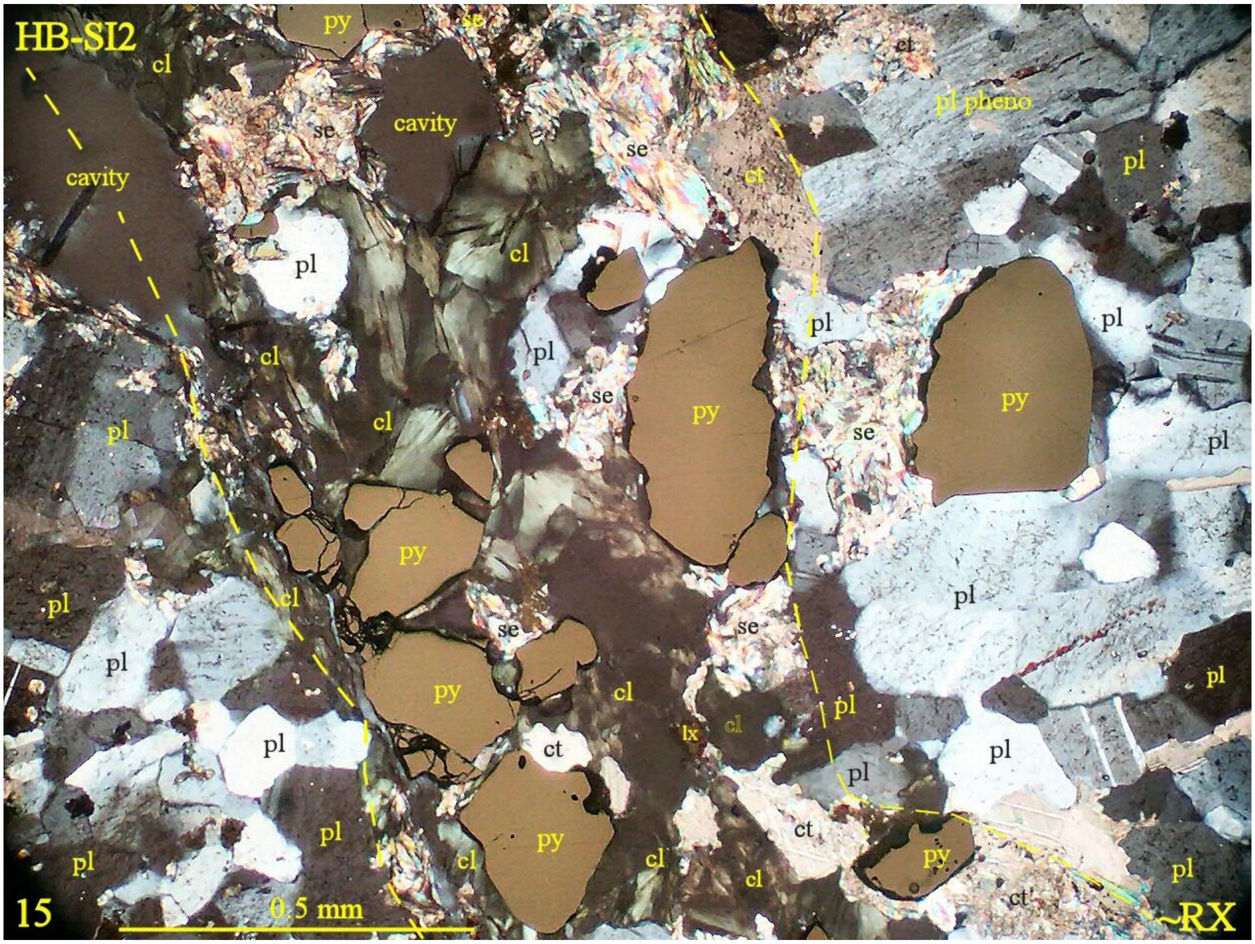

FIGURE 19 170805-15 DISSEMINATED PYRITE GRAINS COULD EXPLAIN THE CHARGEABILITY ANOMALY SEEN IN THE IP DATA

HB-M1

Sample HB-M1 Metamorphosed Hornblende Granodiorite

The sample is dominated by plagioclase with lesser quartz and K-feldspar, accessory tremolite/actinolite (after hornblende), and minor pyrite and biotite. A diffuse band up to 3 mm wide contains clusters of diopside (partly rimmed by tremolite/actinolite and partly altered to calcite/dolomite, and distinct patches up to 2 mm across containing very abundant inclusions of ilmenite/magnetite.

mineral	percentage	main grain size range (mm)
megacrysts		
plagioclase	8-10%	1.5-2.5

tremolite/actinolite	1- 2	0.7-1.2	
groundmass			
plagioclase	50-55%	0.3-0.7	
quartz	15-17	0.2-0.5	(a few up to 0.7 mm across)
K-feldspar	12-15	0.3-1	
tremolite/actinolite	5- 7	0.1-0.5	
biotite	1	0.2-0.4	
ilmenite	1	0.01-0.05; 0.1-0.3	
diopside	1	0.1-0.2	
magnetite	0.3	0.01-0.02; 0.05-0.15	
sphene	minor	0.05-0.08	
apatite	minor	0.03-0.1	(a few up to 0.2 mm across)
pyrite	trace	0.01-0.05	

Plagioclase forms subhedral prismatic megacrysts (possibly phenocrysts) that range from fresh to altered slightly to sericite. Some were replaced slightly to moderately inwards from some margins by irregular patches of K-feldspar. Plagioclase also forms finer anhedral equant grains in part in plagioclase-rich clusters, and in part intergrown coarsely with other minerals.

Quartz forms anhedral grains intergrown coarsely with plagioclase.

K-feldspar forms anhedral grains intergrown coarsely with plagioclase and quartz. It is concentrated moderately bordering the diffuse band described below, I part as an irregular replacement of plagioclase megacrysts. Some K-feldspar grains are slightly perthitic.

Tremolite/actinolite forms scattered coarser grains with pleochroism from pale to light yellowish green to green. It also occurs as finer grains and clusters up to 1 mm across of anhedral equant grains.

Biotite forms disseminated flakes and clusters of flakes, commonly associated with ilmenite and/or tremolite/actinolite. Biotite is pleochroic from pale to medium brown. A few flakes were altered to pseudomorphic, pale green chlorite.

Ilmenite forms disseminated equant to irregular grains commonly associated with mafic minerals; a few ilmenite grains contain tiny exsolution lamellae of hematite(?).

Magnetite forms disseminated equant anhedral grains, commonly associated with mafic minerals, and locally with a thin partial rim of tremolite/actinolite.

Sphene forms anhedral grains commonly associated with ilmenite.

Apatite forms scattered equant grains.

Pyrite forms disseminated equant anhedral grains and also occurs in a few wispy fractures in tremolite/actinolite.

Sample HB-M1

In a diffuse band up to 3 mm wide and locally elsewhere, some grains, especially plagioclase (both megacrysts and finer grained patches) contain very abundant blebby inclusions of ilmenite/magnetite; some of these zones also contain abundant sericite. Diopside occurs in some mafic clusters in this band; in places it is overgrown by tremolite/actinolite, and in places it was replaced strongly by calcite/dolomite. K-feldspar is uncommon in this band.

Sample HB-M1 is of metamorphosed hornblende granodiorite that is dominated by plagioclase with lesser quartz and K-feldspar, accessory tremolite/actinolite (after hornblende), and minor pyrite and biotite. A diffuse band up to 3 mm wide contains clusters of diopside (partly rimmed by tremolite/actinolite and partly altered to calcite/dolomite, and distinct patches up to 2 mm across containing very abundant inclusions of ilmenite/magnetite.

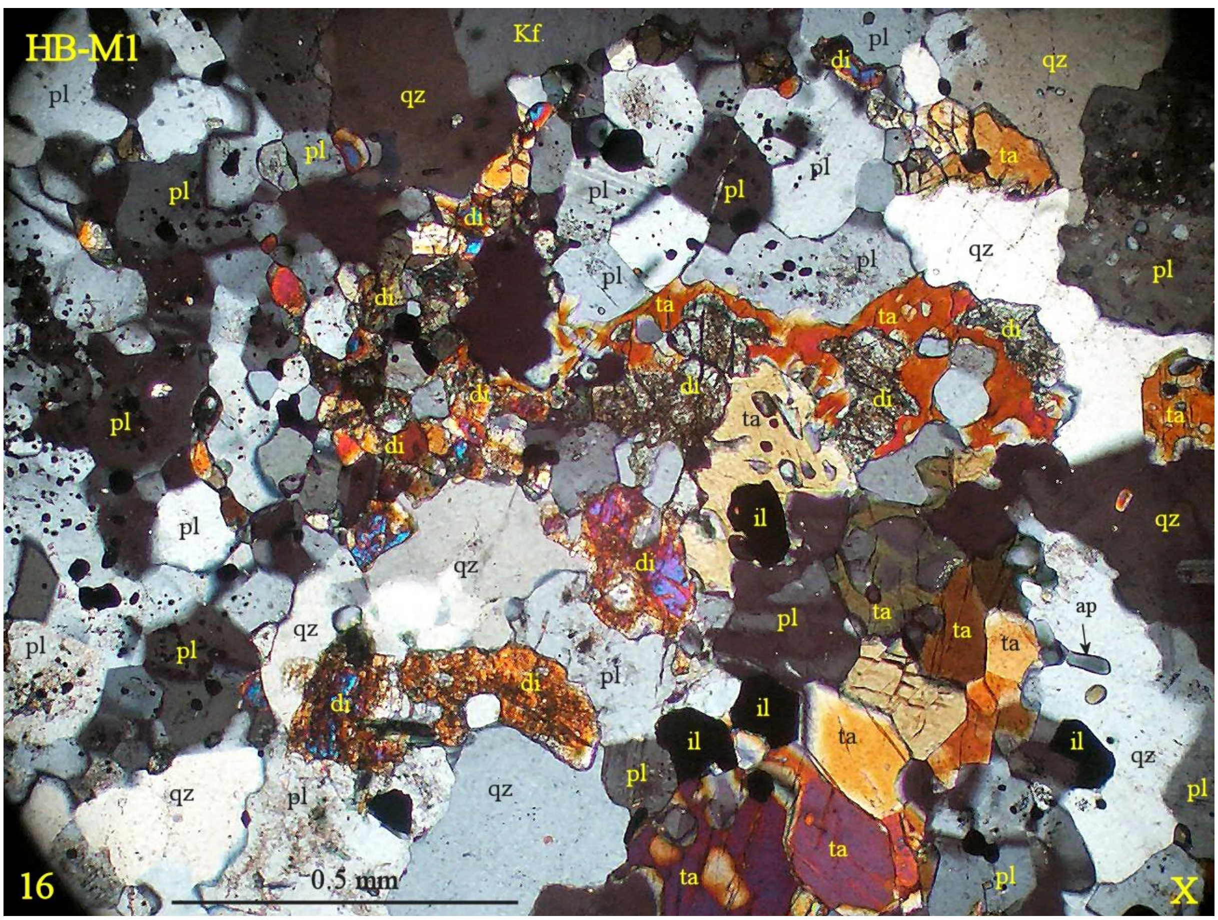

FIGURE 20 170805-16

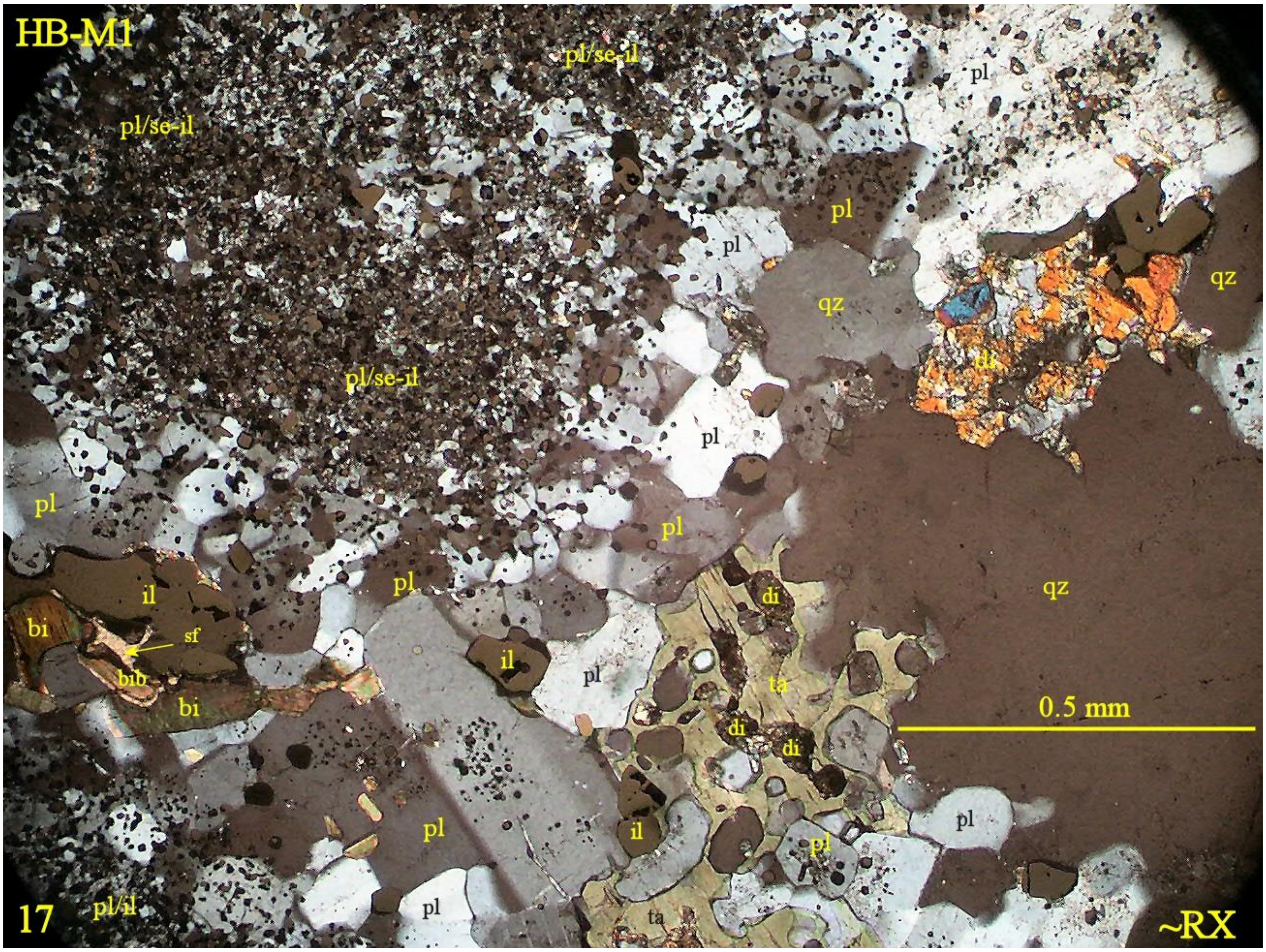

FIGURE 21 170805-17

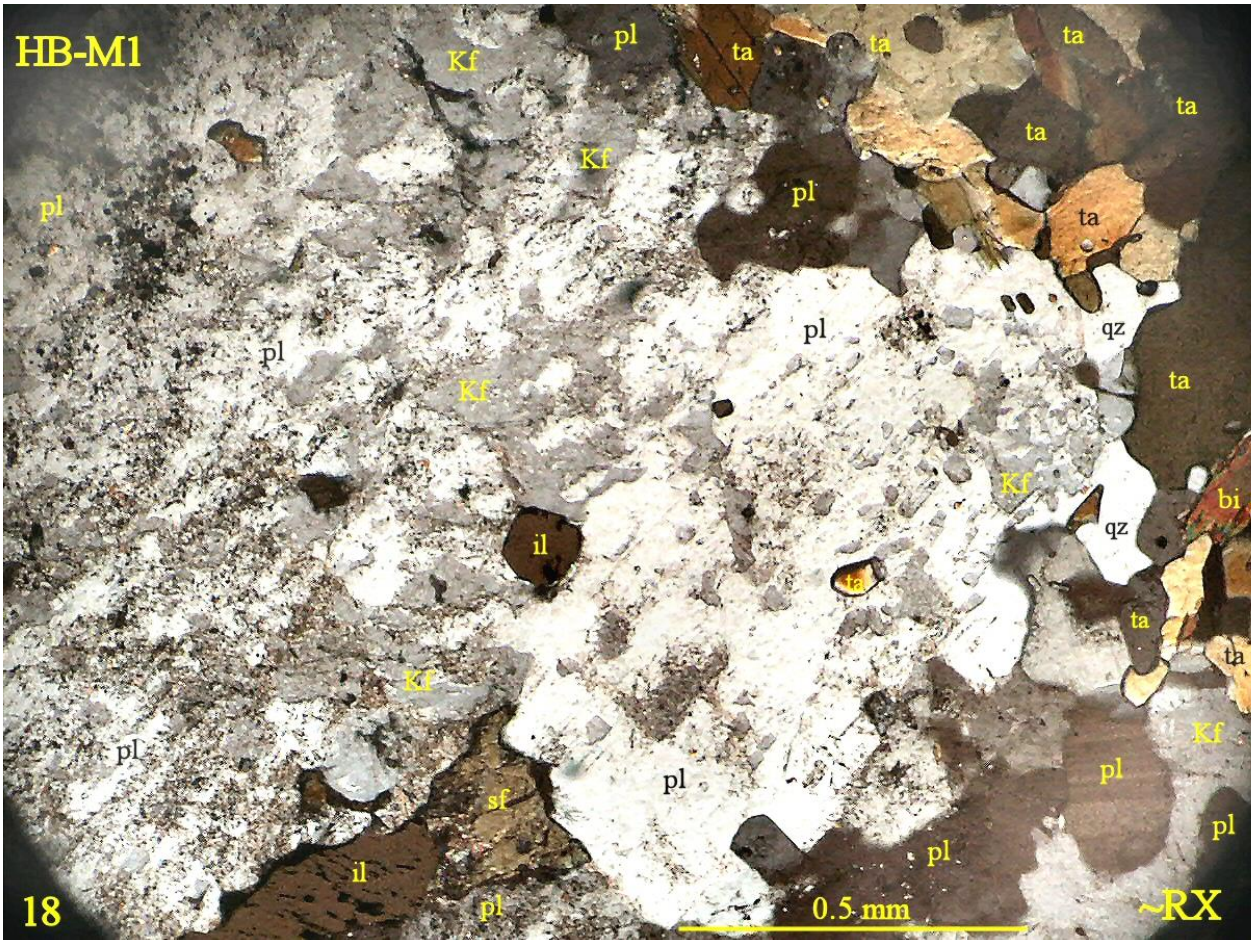

FIGURE 22 170805-18

HB-M2

Sample HB-M2 Metamorphosed Biotite-(Hornblende) Granodiorite

Alteration: Chlorite-Calcite-(Sericite)

The sample is of medium grained metamorphosed granodiorite dominated by plagioclase with lesser K-feldspar and quartz, accessory biotite (altered slightly to moderately to pseudomorphic chlorite), and minor tremolite/actinolite (in part altered completely to calcite/dolomite), diopside (commonly ragged cores in tremolite/actinolite), and magnetite. A discontinuous veinlet is of epidote. A narrow cataclastic seam is at one end of the section.

mineral	percentage	main grain size range (mm)
plagioclase	60-65%	0.3-1.5
K-feldspar	17-20	0.5-2.5

quartz	8-10	0.3-1	
biotite	4- 5	0.3-1	
tremolite/actinolite	1- 2	0.3-0.5	(a few up to 1.0 mm)
magnetite	0.5	0.05-0.3	(a few up to 0.5 mm)
diopside	0.1	0.2-0.3	(one 0.8 mm long)
apatite	0.1	0.05-0.2	
ilmenite	minor	0.05-0.08	
sphene	trace	0.05-0.15	
zircon	trace	0.03-0.05	(a few up to 0.08 mm)
pyrite	trace	0.01-0.03	(a few up to 0.07 mm)
veinlet			
1) epidote	trace	0.03-0.07	
cataclastic seam	0.2	0.005-0.02, a few fragments up to 0.2 mm	

Plagioclase forms anhedral to subhedral prismatic grains that range from fresh to altered slightly to disseminated flakes of sericite and/or disseminated spots of calcite. Some grains contain disseminated square to irregular replacement patches (mainly 0.05-0.08 mm) of K-feldspar.

K-feldspar form anhedral grains intergrown coarsely with plagioclase. Some large grains contain inclusions of subhedral, mainly equant plagioclase. Some grains contain minor perthitic inclusions of sodic plagioclase. Locally bordering K-feldspar grains, plagioclase contains myrmekitic intergrowths of quartz.

Quartz forms anhedral grains, most of which are intergrown coarsely with plagioclase and K-feldspar.

Biotite forms disseminated flakes and clusters of a few flakes with pleochroism from light to dark brown. Some grains were altered slightly to moderately, mainly parallel to cleavage to pseudomorphic pale to light green chlorite and minor Ti-oxide.

Tremolite/actinolite forms disseminated anhedral equant to locally elongate grains with pleochroism from pale to light green. A few patches up to 1 mm across consist of aggregates of tremolite/actinolite and lesser chlorite (after biotite), with minor magnetite. Some patches of tremolite/actinolite and/or diopside were altered strongly to completely to calcite/dolomite.

Diopside forms scattered grains associated with tremolite/actinolite, and in places forming ragged cores of grain rimmed by tremolite/actinolite. One round diopside grain 0.25 mm across ha a thin, very irregular rim of secondary diopside(?).

Magnetite forms disseminated equant grains, a few of which were altered slightly along their margins to hematite.

Sample HB-M2

Ilmenite forms scattered grains, in part associated with biotite and magnetite. A few grains contain abundant exsolution lamellae of hematite.

Apatite forms disseminated anhedral grains, commonly associated with biotite and/or magnetite.

Sphene forms scattered anhedral grains, in part associated with biotite and tremolite/actinolite.

Zircon forms disseminated subhedral stubby prismatic grains commonly associated with biotite.

Pyrite forms disseminated anhedral to subhedral grains.

A discontinuous lensy veinlet up to 0.03 mm wide is of epidote.

A cataclastic seam on one end of the section up to 0.4 mm wide consist of granulated rock fragments.

Sample HB-M2 is of medium grained metamorphosed granodiorite dominated by plagioclase with lesser K-feldspar and quartz, accessory biotite (altered slightly to moderately to pseudomorphic chlorite), and minor tremolite/actinolite (in part altered completely to calcite/dolomite), diopside (commonly ragged cores in tremolite/actinolite), and magnetite. A discontinuous veinlet is of epidote. A narrow cataclastic seam is at one end of the section.

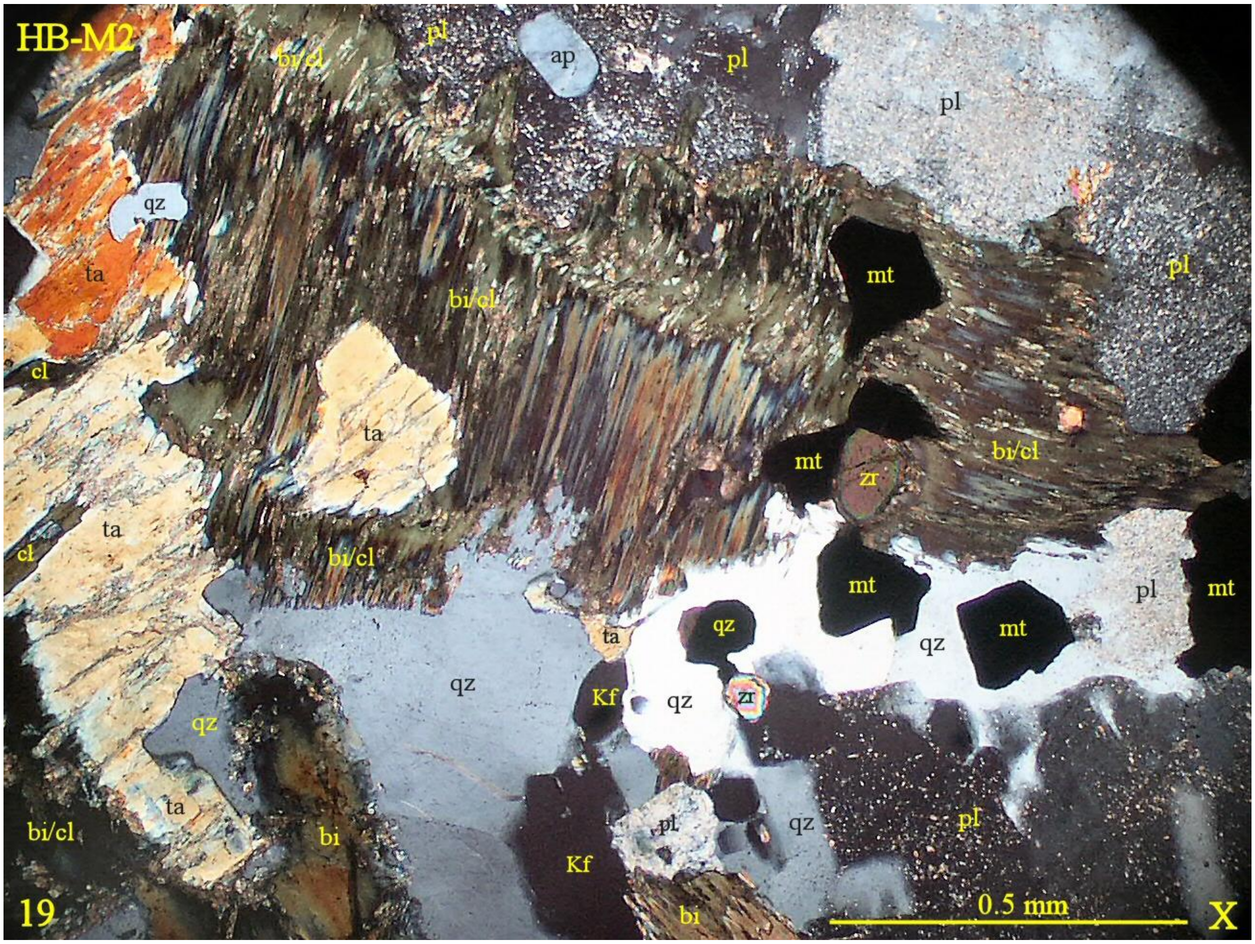

FIGURE 23 170805-19

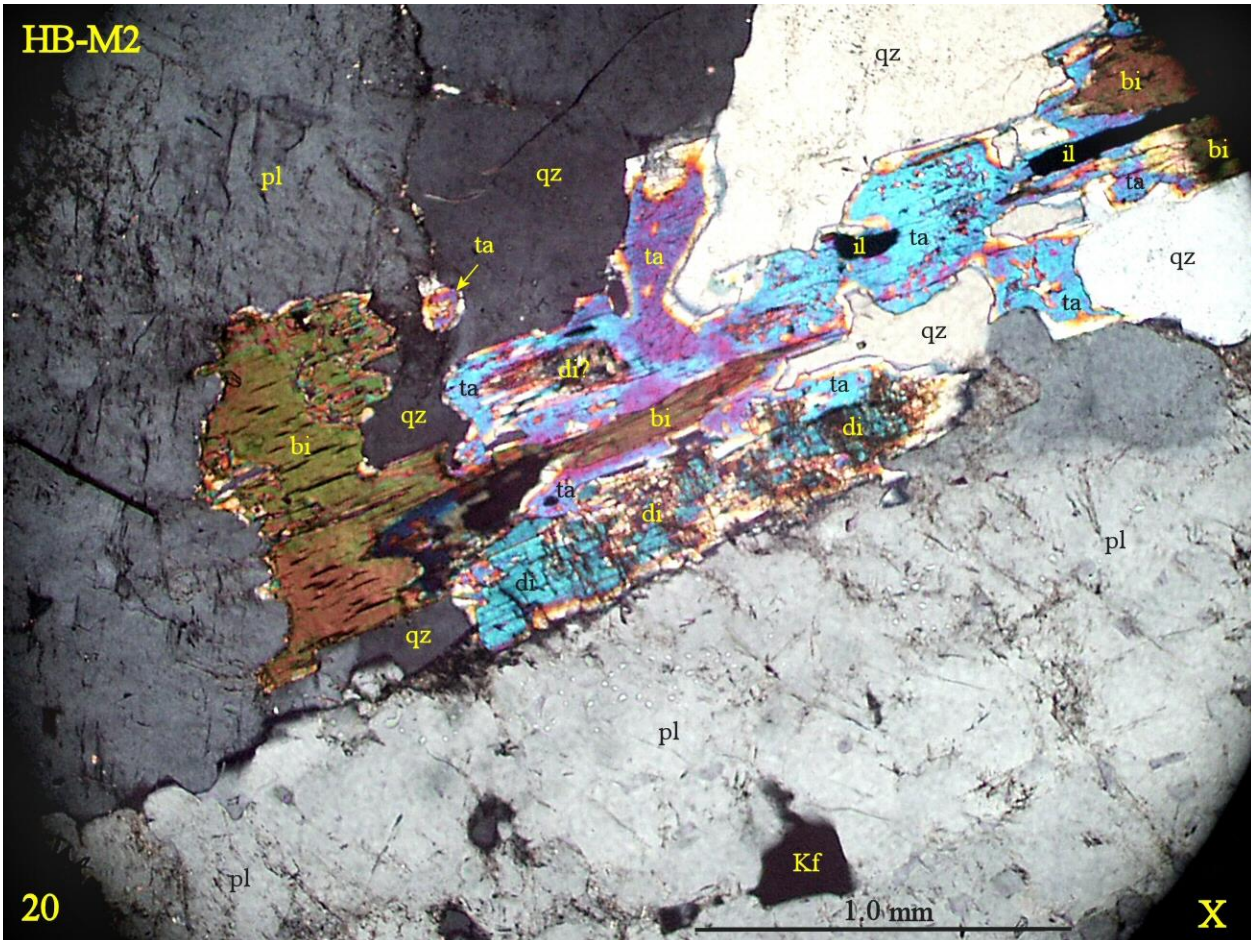

FIGURE 24 170805-20

HB-K1

Sample HB-K1 Metamorphosed Hornblende Syenodiorite

Veinlets: Epidote; Calcite

The sample is dominated by plagioclase (altered variably to sericite, epidote, and hematite) and lesser K-feldspar (in part replacing plagioclase), with accessory quartz and hornblende (metamorphosed to tremolite/actinolite), and with minor ilmenite-hematite. An early veinlet of epidote is truncated by one of several later wispy veinlets of calcite.

mineral	percentage	main grain size range (mm)
megacrysts		
plagioclase	4- 5%	2- 4
finer grains		

plagioclase	60-65%	0.2- 1.5	
K-feldspar	15-17	0.7- 2	
hornblende	8-10	0.7-1.5	
quartz	5- 7	0.5-0.8	
ilmenite/hematite	1- 2	0.1-0.3	(a few up to 0.5 mm)
magnetite	0.7	0.07-0.15	(a few up to 0.3 mm)
epidote	0.3	0.03-0.1	
sphene	0.3	0.07-0.15	
apatite	0.2	0.05-0.2	
chlorite	0.2	0.05-0.08	
calcite	0.1	0.1-0.25	
pyrite	0.1	0.02-0.05	(locally 0.1-0.5 mm)
zircon	trace	0.07-0.1	
chalcopyrite	minor	0.01-0.07	
veinlets			
1) epidote	0.1	0.02-0.05	
2) calcite	0.3	0.05-0.15	

Plagioclase forms anhedral to subhedral grains that range widely in size. A few are altered moderately to irregular disseminated patches of epidote. Many are altered slightly to disseminated flakes of sericite. Several grains were replaced moderately to locally strongly in irregular patches to K-feldspar. All contain moderately abundant dusty hematite.

K-feldspar forms anhedral grains intergrown with and in part interstitial to plagioclase. Grains commonly have less abundant dusty hematite than do those of plagioclase. Some grains contain up to 20% relic patches of plagioclase, suggesting that K-feldspar was, in part at least, formed by partial replacement of plagioclase.

Hornblende forms ragged to subhedral, stubby prismatic grains that were metamorphosed to tremolite/actinolite with a pale to light green pleochroism. Some grains contain up to a few patches up to 0.1 mm in size of chlorite.

Quartz forms anhedral grains that are concentrated moderately in a few patches.

Ilmenite, with delicate exsolution lenses and/or irregular patches of hematite, forms disseminated grains and clusters of a few grains, commonly associated with amphibole.

Magnetite forms disseminated, anhedral grains, commonly associated with amphibole and locally intergrown coarsely with ilmenite-hematite.

Sample HB-K1

Sphene forms scattered anhedral to euhedral grains away from ilmenite and in several patches forms partial to complete rims on ilmenite-hematite grains.

Epidote, with or without accessory calcite, forms a few replacement patches up to 0.7 mm across.

Apatite forms disseminated grains including one irregular grain (or cluster of grains in parallel orientation) 0.8 mm long.

Chlorite forms scattered patches up to 0.3 mm in size; textures suggest that it is not pseudomorphic after biotite.

Calcite forms a few interstitial patches from 0.2-0.4 mm in size.

Pyrite forms disseminated grains and is concentrated in one large patch 1 mm across.

Zircon forms a few subhedral, stubby prismatic grains.

Chalcopyrite is concentrated in an open cluster of grains associate with epidote near the large patch of pyrite. It also forms a grain 0.02 mm across included in a grain of ilmenite-hematite.

A veinlet up to 0.3 mm wide with irregular margins is mainly of epidote; it was truncated by one of several calcite veinlets from 0.02-0.1 mm in width. Where calcite veinlets cross some plagioclase grains, secondary sericite, present in the rest of the plagioclase grain, was removed.

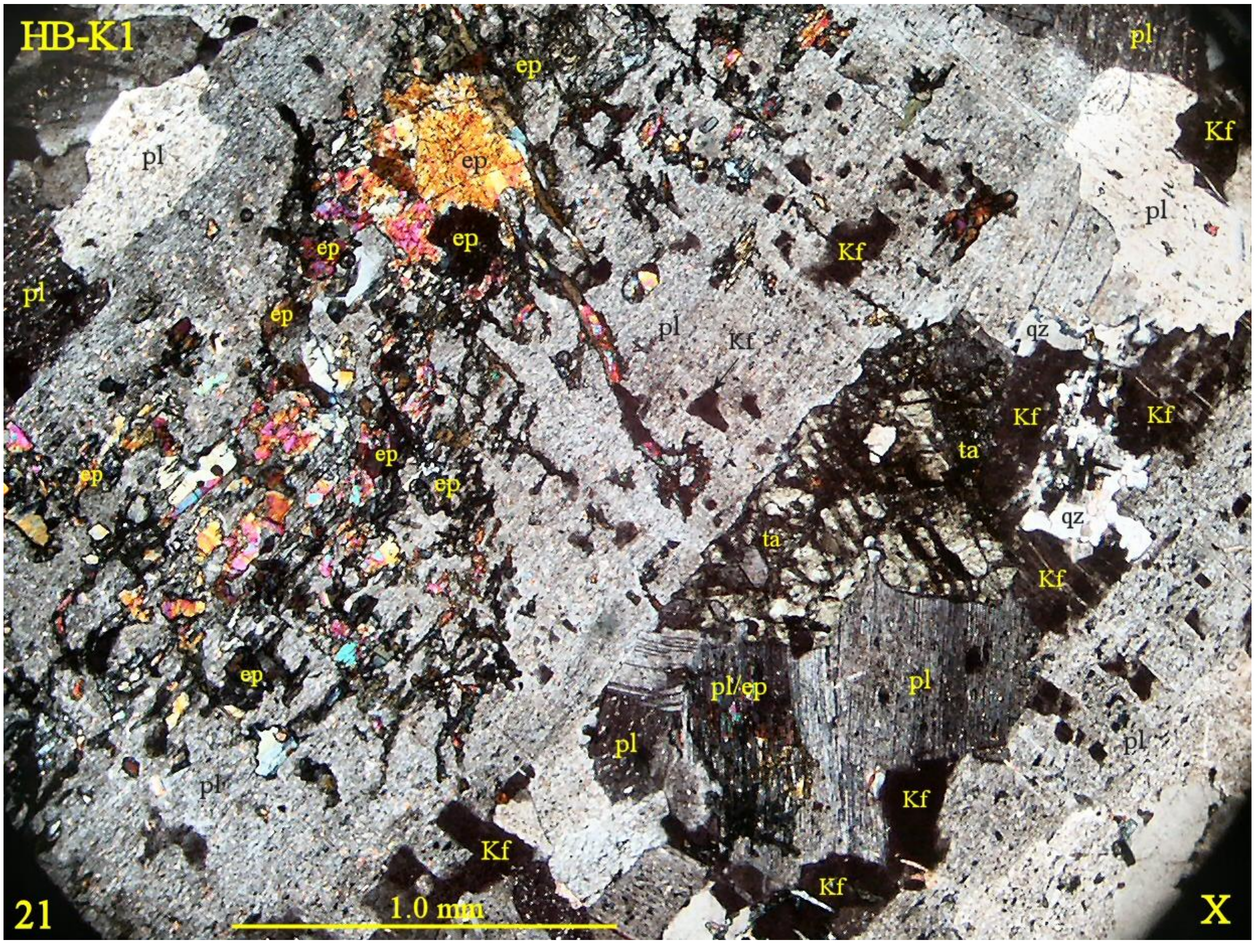

FIGURE 25 170805-21

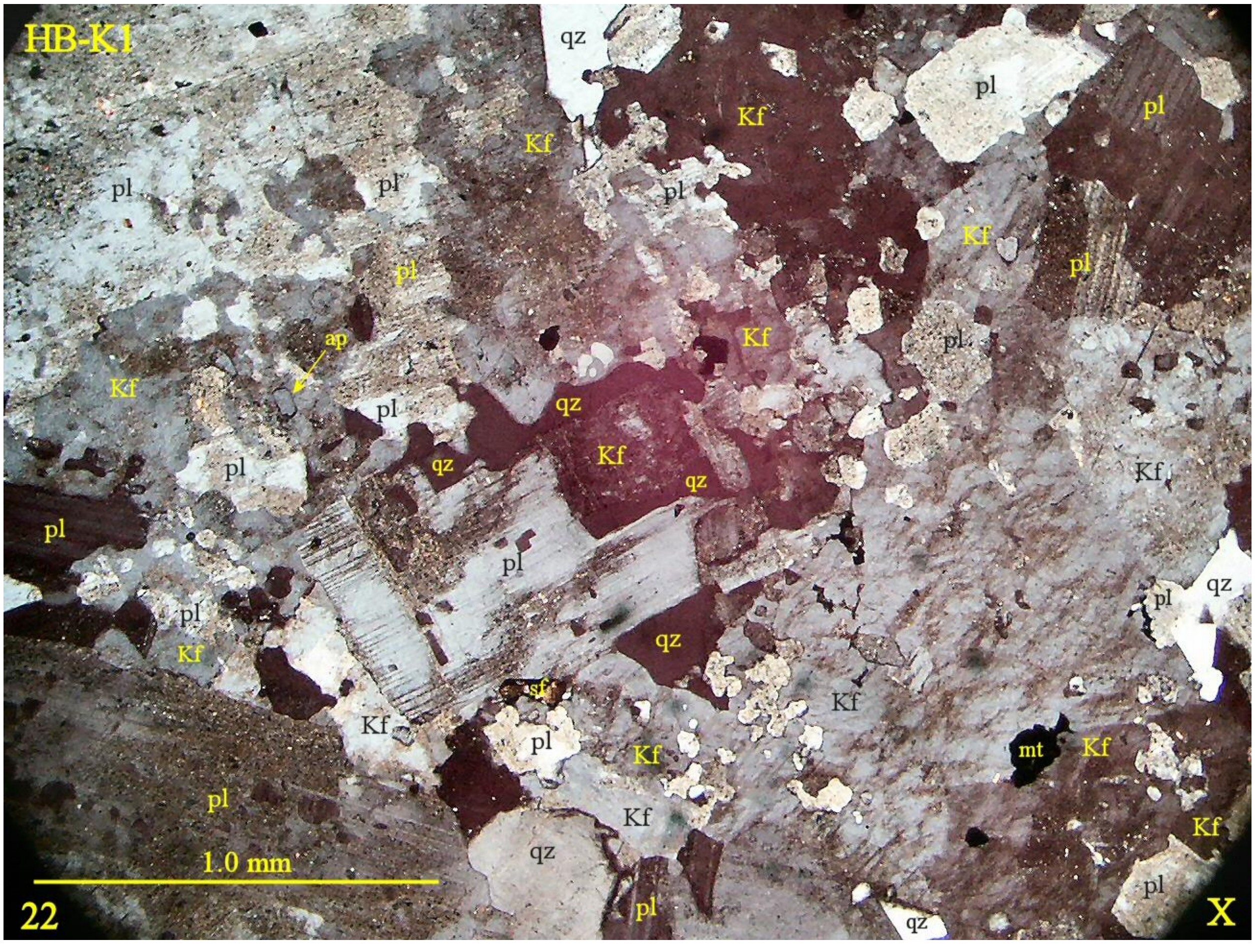

FIGURE 26 170805-22

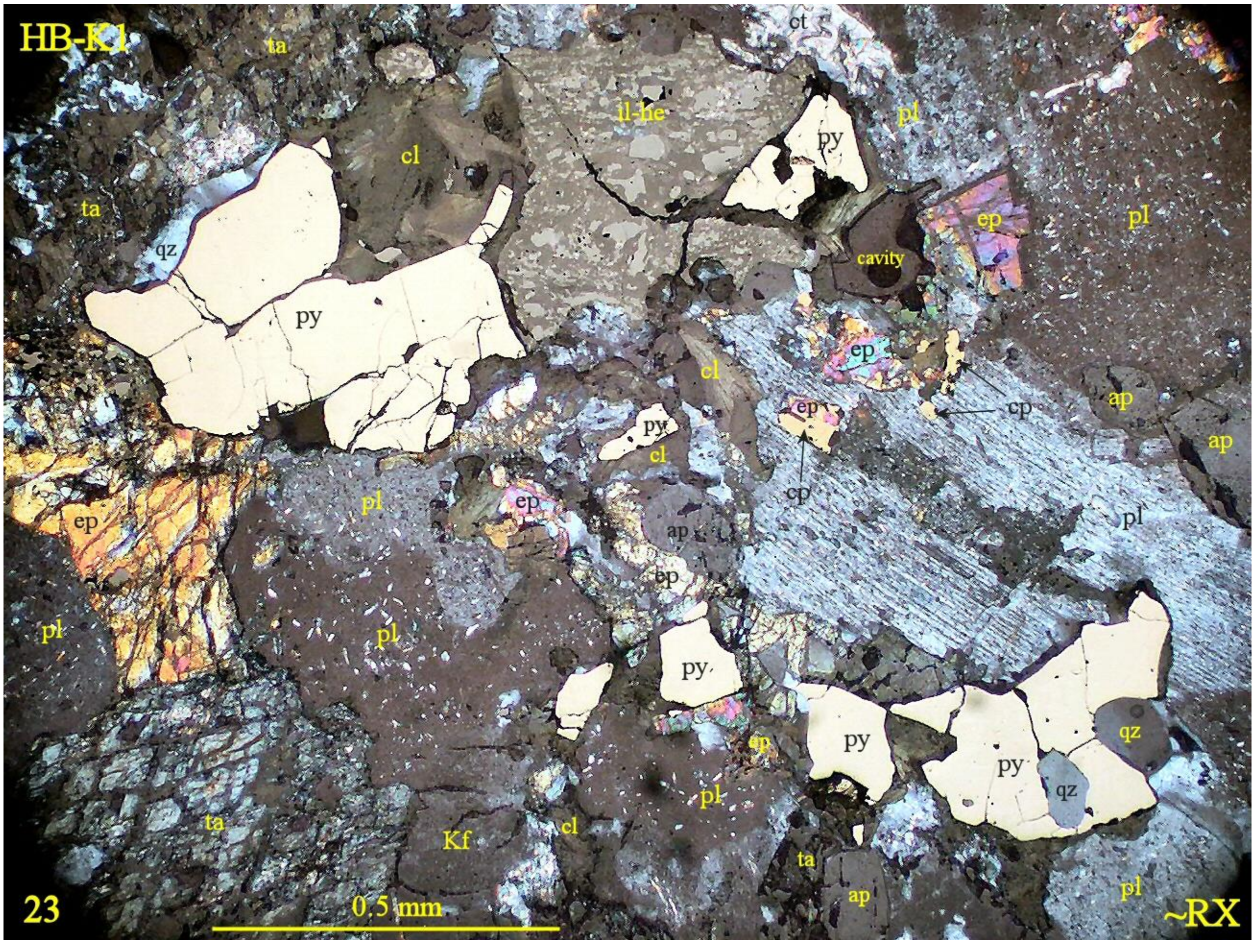

FIGURE 27 170805-23

HB-K2

Sample HB-K2   Metamorphosed Biotite Quartz Diorite

The sample contains two main zones. Zone A is of metamorphosed biotite quartz diorite that contains scattered megacrysts of plagioclase in a finer grained intergrowth of plagioclase and quartz, with disseminated mafic clusters dominated by biotite and lesser magnetite, with minor apatite, pyrite, and ilmenite-hematite, and trace sphene and chalcopyrite.

mineral	percentage	main grain size range (mm)
megacrysts		
plagioclase	7- 8%	1-2.5
finer grained rock		
plagioclase	60-65	0.2-0.7

quartz	12-15	0.2-0.5	
biotite	5- 7	0.2-0.5	(a few up to 0.8 mm long)
tremolite/actinolite	2- 3	0.2-0.5	
magnetite	1- 2	0.05-0.1	
K-feldspar	1	0.1-0.3	
apatite	0.1	0.05-0.1	(a few up to 0.2 mm long)
sphene	minor	0.05-0.15	
pyrite	minor	0.03-0.05	(a few up to 0.3 mm)
ilmenite-hematite	minor	0.05-0.15	
sphene	trace	0.05-0.1	
chalcopyrite	trace	0.01-0.03	
veinlets			
1) zeolite	2- 3	0.05-0.2	
2) clinozoisite	0.4	0.02-0.03	
3) calcite	minor	0.02-0.03	

In Zone A, plagioclase forms scattered, commonly prismatic megacrysts that were altered slightly to sericite and locally slightly to calcite. Finer grained plagioclase forms equant, anhedral to subhedral grains and also are altered slightly to sericite. A few grains contain minor blebby inclusions of quartz (0.007-0.015 mm).

Quartz forms anhedral, equant grains intergrown coarsely with plagioclase.

Biotite commonly occurs in clusters of flakes that range from fresh (pleochroism from very pale to medium brown) to partly or completely altered to pseudomorphic, pale green chlorite with minor epidote and/or Ti-oxide.

K-feldspar forms disseminated anhedral grains, mainly interstitial to plagioclase.

Magnetite forms disseminated grains that range from equant to irregular, the latter commonly interstitial to silicates. Some magnetite grains are associated with biotite.

Tremolite/actinolite forms anhedral grains that commonly are associated with biotite. Pleochroism is from very pale top pale or light green.

Apatite forms disseminated grains, in part associated with mafic clusters.

Pyrite forms disseminated equant anhedral grains and clusters of a few grains. One large grain contains an inclusion 0.03-0.05 mm in size of each of pyrrhotite and chalcopyrite, and another few grains each contain a blebby to irregular inclusion of chalcopyrite.

Ilmenite, with exsolution lenses of hematite, form scattered, commonly moderately elongate grains.

Sample HB-K2

Sphene forms anhedral grains that commonly form partial rims on magnetite.

Chalcopyrite also forms a few grains intergrown with silicates near or adjacent to grains of pyrite.

Zone B is characterized by abundant subparallel veinlets, discontinuous, branching stringers, and a few veins up to 0.3 mm wide of zeolite, with much less abundant veinlets of clinozoisite(?), and a few wispy stringers of calcite.

Plagioclase commonly is more strongly altered to sericite and dusty hematite in Zone B than in Zone A. As well Zone B contains several patches up to 2 mm in size of extremely fine grained epidote/clinozoisite, with abundant disseminated equant grains of magnetite/ilmenite and lesser grains of quartz; these patches probably are secondary after plagioclase.

Biotite is altered strongly to completely to pseudomorphic chlorite and minor patches of epidote or Ti-oxide.

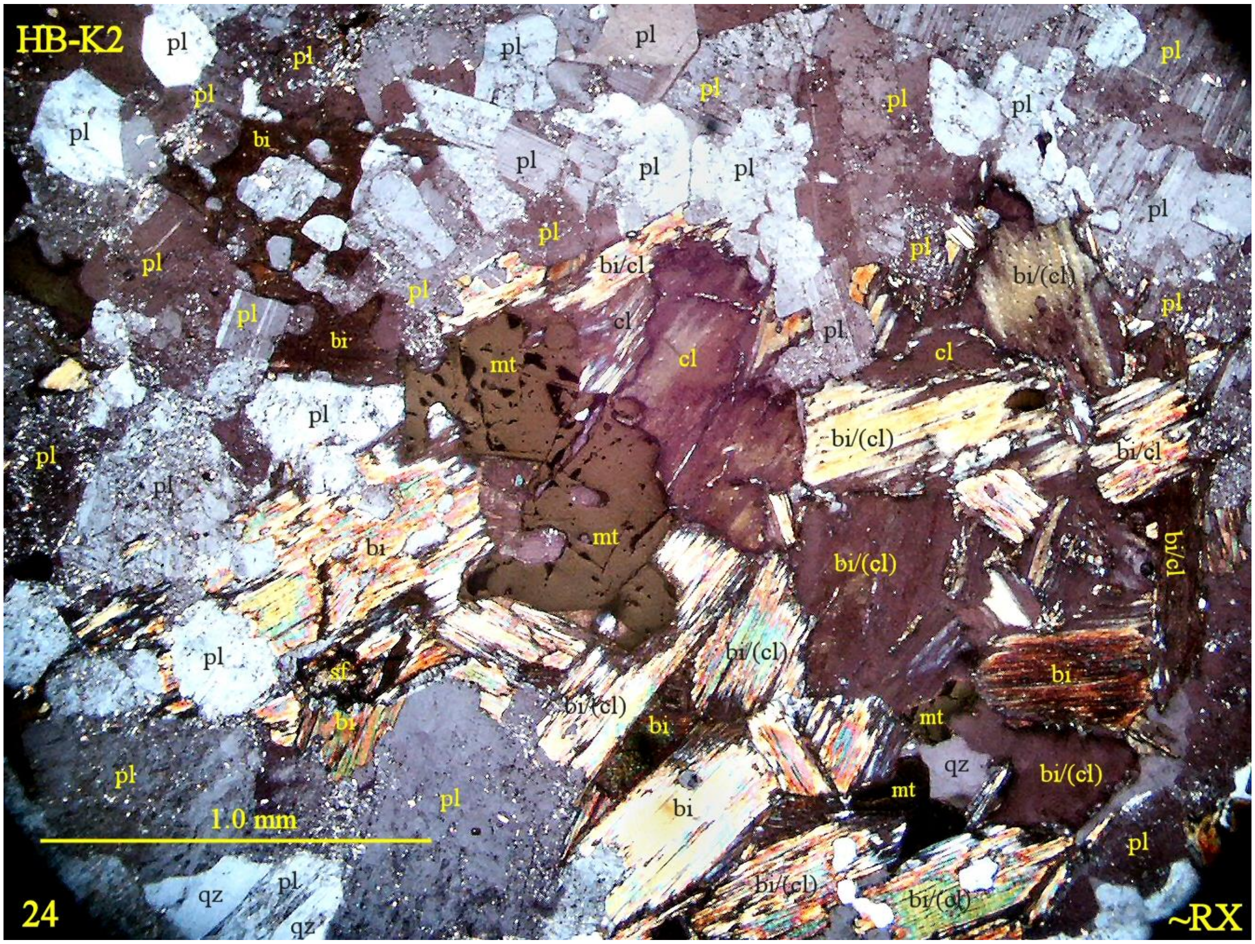

FIGURE 28 170805-24

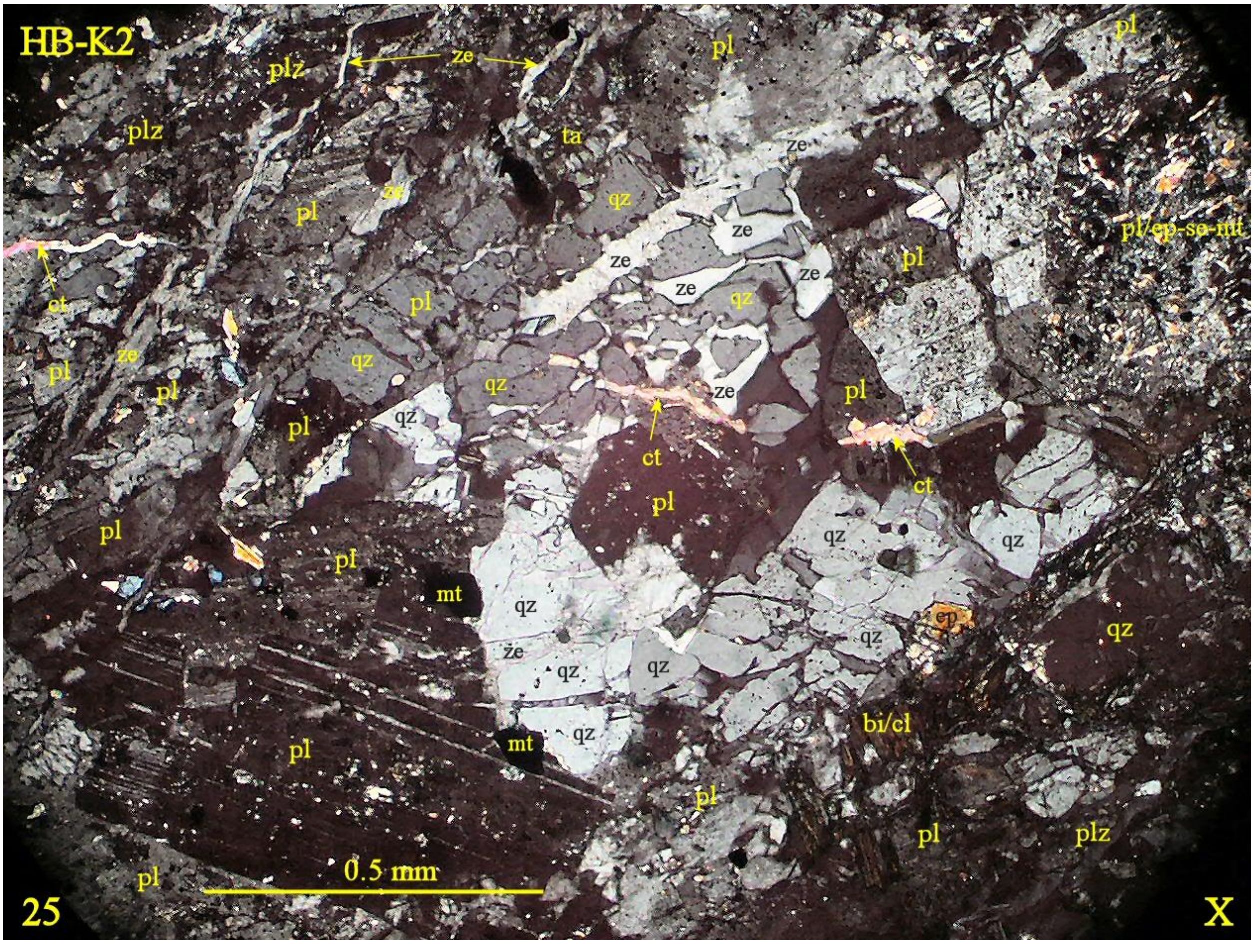

FIGURE 29 170805-25

Photographic Notes:

The scanned section shows the gross textural features of the sections; these features are seen much better on the digital image than on the printed image. For the photographs, sample numbers are shown in the upper left corner, photo numbers are shown in the lower left corner, and the letter in the lower right corner indicates the lighting conditions: incident light in crossed nicols = X; reflected light in nearly crossed nicols and incident light in crossed nicols = ~RX. Locations of photographs are shown on the scanned section. Descriptions of the photographs are at the end of the report.

List of Photographs

Photo	Section	Description
01	HB-RP2	intergrowth of anhedral, slightly perthitic K-feldspar with lesser anhedral plagioclase (altered slightly to moderately to dusty sericite and opaque hematite), and quartz, with minor ilmenite; against K-feldspar, plagioclase commonly has a thin albitic rim (the most obvious ones are pointed out in the photo).
02	HB-RP2	very fine grained mafic cluster (possibly a metamorphosed inclusion) of plagioclase, actinolite, K-feldspar, lesser biotite and quartz, minor ilmenite, and trace apatite and sphene; surrounded by fine/medium grained aggregate of plagioclase, K-feldspar, and quartz.
03	HB-RP3	to the left: subhedral plagioclase phenocryst (altered moderately to sericite); to the right: groundmass of equant, submosaic K-feldspar and plagioclase (both with abundant dusty hematite inclusions) and mainly subrounded quartz; trace chlorite and sphene; discontinuous veinlets of epidote-chlorite.
04	HB-RP3	plagioclase phenocryst (altered moderately to dusty sericite and hematite), with intergrown skeletal grain of light green tremolite/actinolite that was replaced in part by colourless tremolite; groundmass (to the right) is dominated by K-feldspar with lesser plagioclase and minor subrounded quartz.
05	HB-SP1	plagioclase-rich patch: plagioclase altered in patches moderately to completely to one of sericite, muscovite, and epidote; disseminated pyrite grains; to the right: quartz-rich zones with lesser altered plagioclase and accessory pyrite.
06	HB-SP1	clusters of plagioclase grains (altered moderately to strongly to sericite/muscovite, accessory calcite, and minor epidote) containing anhedral grains of pyrite with an inclusion in one of chalcopyrite and an inclusion in another of pyrrhotite; intergrown coarsely with quartz.
07	HB-SP2	intergrowth of plagioclase (altered slightly to moderately to sericite and dusty hematite, and in one patch altered completely to sericite) and lesser quartz and biotite (altered completely to pseudomorphic chlorite-[Ti-oxide]), with disseminated grains of pyrite, minor equant flakes of muscovite, and trace apatite.

08 HB-SP2 anhedral plagioclase (varying from relatively fresh with disseminated sericite and hematite to altered completely to dense patches of sericite) intergrown with lesser quartz and scattered grains of biotite (altered completely to pseudomorphic chlorite with minor Ti-oxide); somewhat diffuse veinlet of calcite and minor quartz.

09 HB-SP3 intergrowth of plagioclase (altered in patches moderately to locally strongly to one or more of sericite, muscovite, and calcite) and quartz; one flake of biotite (altered completely to minor pseudomorphic muscovite and abundant leucoxene), a patch of chlorite and trace pyrite.

10 HB-SP3 anhedral pyrite grains (largest one with two inclusions of pyrrhotite) intergrown with plagioclase (altered slightly to completely to sericite-[muscovite]) and biotite (altered completely to pseudomorphic chlorite-[muscovite]), with minor quartz and a patch of rutile.

11 HB-SP3 open clusters of rutile and a few grains of pyrite intergrown with plagioclase (altered slightly to completely to sericite-[muscovite]); minor patches of chlorite.

12 HB-SI1 to the left: plagioclase phenocryst with disseminated spots of calcite, epidote, sericite, and chlorite; to the right: groundmass plagioclase with disseminated patches of epidote, of calcite, and of chlorite, and two grains of pyrite; at top calcite veinlet.

13 HB-SI1 intergrowth of plagioclase (altered in patches to calcite and in others to epidote) with much less abundant quartz and chlorite, with disseminated grains of pyrite and commonly associated leucoxene (after rutile); discontinuous veinlike zone of calcite.

14 HB-SI2 plagioclase phenocryst (with disseminated patches of chlorite, epidote, calcite, pyrite, and sericite) in a groundmass of equant plagioclase, with disseminated patches of epidote, chlorite and calcite, and grains of pyrite; veinlets of calcite.

15 HB-SI2 vein of chlorite-pyrite-sericite-calcite-plagioclase cutting host rock: plagioclase phenocryst in a groundmass of finer grained plagioclase with a few replacement patches of calcite, one of sericite and a grain of pyrite, all near the vein.

16 HB-M1 to the left: fine grained anhedral plagioclase with scattered inclusions of ilmenite/magnetite; in the middle: mafic cluster containing diopside clusters, in part rimmed by tremolite/actinolite and a cluster of tremolite/actinolite-ilmenite, intergrown coarsely with plagioclase, quartz, and one large grain of K-feldspar (at the top); to the right: plagioclase-quartz with minor tremolite/actinolite.

17 HB-M1 patches of very fine grained plagioclase with very abundant inclusions of ilmenite/magnetite and slight to moderate sericite alteration; intergrowth of plagioclase and quartz with ragged patches of each of tremolite/actinolite (with accessory diopside and ilmenite), diopside, and ilmenite-biotite-(sphene).

18 HB-M1 plagioclase megacryst (replaced moderately by irregular patches of K-feldspar) intergrown with finer grained plagioclase, a patch of tremolite/actinolite-(biotite), a patch of ilmenite-sphene and minor quartz and disseminated tremolite/actinolite and ilmenite.

19 HB-M2 mafic cluster: biotite (altered slightly to strongly to pseudomorphic chlorite and minor Ti-oxide), lesser anhedral tremolite/actinolite (after hornblende), disseminated grains of magnetite, and two grains of zircon; intergrown with plagioclase (altered slightly to sericite), quartz, and lesser K-feldspar, with a euhedral grain of apatite.

20 HB-M2 lenses of diopside (partly altered and rimmed by fresh tremolite/actinolite with lenses of ilmenite and with exterior patches of biotite; enclosed in coarse grained plagioclase (with minor inclusions of K-feldspar) and quartz.

21 HB-K1 plagioclase megacrysts (one altered moderately in irregular patches to epidote and minor patches of K-feldspar), anhedral grain of tremolite/actinolite (after hornblende); finer grained plagioclase, K-feldspar, and minor quartz.

22 HB-K1 plagioclase grains intergrown with K-feldspar and minor quartz; some plagioclase grains were corroded by and replaced irregularly by K-feldspar and some K-feldspar grains contain clusters of irregular inclusions of plagioclase; one grain of each of sphene, magnetite, and apatite.

23 HB-K1 cluster of pyrite, epidote, ilmenite-hematite, chlorite, apatite, and minor chalcopyrite and calcite; intergrown with plagioclase (altered slightly to sericite), tremolite/actinolite (after hornblende), and minor K-feldspar and quartz.

24 HB-K2 Zone A: mafic cluster: magnetite surrounded by biotite (some flakes fresh, some altered slightly to pseudomorphic chlorite [bi/(cl)], some altered strongly to pseudomorphic chlorite and minor epidote [bi/cl]); enclosed in plagioclase (altered slightly to sericite) with minor quartz and skeletal biotite.

25 HB-K2 Zone B: plagioclase (mainly altered slightly to sericite, one grain altered strongly to epidote-sericite with abundant disseminated spots of magnetite) with lesser quartz and minor tremolite/actinolite and biotite (altered completely to pseudomorphic chlorite), with trace magnetite and epidote; fractured strongly and locally crushed (plz) with abundant veinlets and fracture-filling patches of zeolite; a discontinuous veinlet of calcite.

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CONCLUSIONS AND RECOMMENDATIONS

The Hot Bath project has very good potential as an exploration target for copper/gold bearing hydrothermal mineralization. As these high values appear to ring an interpreted intrusive the mineralization is potentially associated with a mineralized intrusive. Further work is recommended in the Hot Bath intrusive area, in the central part of the Hot Bath block, on claims 1036552 and 1025437. As the comparison of the MMI and standard soil analysis results for copper have a direct association a follow-up soil geochemical survey can be executed using standard auger geochemical survey techniques. This method is significantly faster and less expensive than MMI. Geological mapping of the exposed mineralized vein and channel sampling of the outcrop is also recommended. Regional mapping should concentrate on the ring zone of the intrusive with attention paid to discovering additional mineralized veins. Assuming the mineralized vein is associated with the intrusive, orientation measurement any newly discovered veins would likely be arranged radially around the intrusive centre. Induced Polarization geophysical surveying gave a good response from the disseminated sulphides associated with the mineralized vein and the assumed porphyry intrusive. Additionally, the associated resistivity value from the IP survey has shown to be useful for geological mapping. IP lines were run perpendicular to the geological strike. The geological units as mapped by the BCGS are approximately east-west, however the strike of the mineralized vein is northwest. Further mapping will help to resolve the extent of the favourable geological unit. Further geochemical sampling and geophysical readings should be run to the north-west with 100 meter separated lines at 50 meter intervals.

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AUTHOR'S CERTIFICATE

I, JOHN BUCKLE, do hereby certify that: I am a Consulting Geoscientist with Geological Solutions. I am the author of this report, titled: Report on Petrographic Study of the Hot Bath Property, Dease Lake Area, Liard Mining Division, British Columbia

I further certify that:

1. I am a graduate of York University in Toronto (1980) and hold a B.Sc. degree.
2. I have been practicing my profession for the past 35 years and have been active in the mining industry for the past 42 years.
3. This report is compiled from data obtained from DeCoors Mining Corp. and VANCOUVER PETROGRAPHIC LTD
4. I am registered as a Professional Geoscientist with the Association of Professional Engineers and Geoscientists of the Province of British Columbia (Geophysics) #31027 and with the Association of Professional Geoscientists of Ontario #0017.

John Buckle, P.Geo.
April 2, 2018

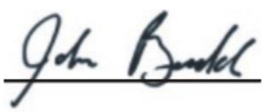
PROFESSIONAL PROVINCE OF J.E. BUCKLE #31027 BRITISH COLUMBIA GEOSCIENTIST

Statement of Expenditures

TABLE 2 TABLE OF EXPENDITURE

Description		Provider	Unit Cost	
Sample Selection	L. Wasylysyn, GIT	DeCoors Mining	$450/day	$450
Petrographic Report	Dr. John Payne	Vancouver Petrographic	$3,191.53	$3,191.53
Interpretation/Report	J. Buckle, P.Geo.	Geological Solutions	$500/day	$1,000
Total				$4,641.53

Respectfully submitted,



April 2, 2018