BRITISH COLUMBIA

Ministry of Energy & Mines
Energy & Minerals Division
Geological Survey Branch

ASSESSMENT REPORT
TITLE PAGE AND SUMMARY

TITLE OF REPORT [type of survey(s)]: GEOLOGICAL AND GEOPHYSICAL REPORT ON EMORY CR. PROP.
TOTAL COST: $40,205.17

AUTHOR(S): M. McCLAREN
SIGNATURE(S): M. McClaren

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): MX-7-166 (APPROVAL JUNE 13/06)
YEAR OF WORK: 2006

STATEMENT OF WORK - CASH PAYMENT EVENT NUMBER(S)/DATE(S): 4119074 JAN. 1, 2007

PROPERTY NAME: EMORY CREEK PROPERTY

CLAIM NAME(S) (on which work was done): EMORY 1; EMORY 2; EMORY 11

COMMODITIES SOUGHT: NICKEL; COPPER; COBALT

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN:

MINING DIVISION: NEW WESTMINSTER
NTS: 092H043

LATITUDE: 49 ° 28 ' 0 "
LONGITUDE: 121 ° 33 ' 16 " (at centre of work)

OWNER(S)

1) PACIFIC NICKEL SYNDICATE
2)

MAILING ADDRESS

2990 ST. KILDA AVE.,
N.VAN. B.C. V7N 2A7

OPERATOR(S) [who paid for the work]

1) PACIFIC NICKEL CORP.
2)

MAILING ADDRESS

SUITE # 605, 475 HOWE ST.,
VANCOUVER, B.C. V6C 2B3

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):

PYRRHOTITE; CHALCOPYRITE; PYRRHOTITE; WEBSTERITE; DUNITE; GABBRO; HORNBLENDE PYROXENITE; ACTINOLITE; TALC; SERPENTINE; CARBONATE

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS

28020; # 05385; # 16553

(OVER)

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	1: 10000 $2 Km^2$	EMORY 1; 2; EMORY 11	7425.42
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic	2.4 Km	EMORY 1; EMORY 11	7817.20
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other	GEOPHYSICS CONS. (PLOTTING)	EMORY 1; EMORY 11	1431.00
Airborne			
GEOCHEMICAL (number of samples analysed for ...)			
Soil	1	EMORY 1	
Silt			
Rock	9	EMORY 1	
Other	7 HEAVY MINERAL CONC.	EMORY 1; 2; EMORY 11	
		TOTAL	1974.66
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying		EMORY 1; 2; EMORY 11	630.00
Petrographic		EMORY 1	5027.50
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY/PHYSICAL			
Line/grid (kilometres)	.8 Km	EMORY 1	2329.03
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail		EMORY 1; EMORY 2	10,560.64
Trench (metres)			
Underground dev. (metres)			
Other			
		TOTAL COST	37,195.45

Geological and Geophysical Report on the Emory Creek Property

WORK CARRIED OUT ON THE
EMORY 1(416679); EMORY 2 (416680) and EMORYII (517023)
MINERAL TENURES

NEW WESTMINSTER MINING DISTRICT
BRITISH COLUMBIA
NTS: 092H043

Latitude: 49 degrees 28 minutes 0 seconds
Longitude: 121 degreees 33 minutes 16 seconds

Prepared for:
PACIFIC COAST NICKEL CORP.
OPERATOR
and
PACIFIC NICKEL SYNDICATE
OWNER

Period of Field Work: Sept. 23ND to Nov. 2ND,2006.

Prepared by:
Murray McClaren, P.Geo.

CROCKITE RESOURCES LTD.
283 Woodale Road,
North Vancouver, British Columbia,
V7N 1S6
February 5, 2007.

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INTRODUTION

Pacific Coast Nickel Corp. completed $40,205.17 of work on the Emory Creek Property in 2006. This work involved the collection of 19 rock samples (for thin section analysis), the collection of 8 rock samples (for analytical analysis). 5 heavy mineral concentrate samples, 1 soil sample,1 sample of rock fines, the collection of approximately 2.4 kilometers of magnetometer survey data and the improvement of 2.9 kilometers of access to the Emory 1 mineral tenure. Geological mapping was carried out on portions of the Emory 1; Emory 2 and Emory II mineral tenures. The work was carried out during the period of late September to early November 2006. The purpose of the surveys was to define mineral exploration target areas and broadly assess other areas for their nickel-copper (+/-PGM) mineral potential.

Previous exploration located mineralized mafic-ultramafic rubble located at a road landing used for past logging operations, situated near the eastern boundary of the Emory 1 mineral tenure. In addition, an AeroTem II electromagnetic and magnetometer survey carried out by Aeroquest Limited for Pacific Coast Nickel Corp. in 2005 identified areas on the Emory Creek Property that warranted further assessment.

Access to the landing site was previously by foot either through thick underbrush developed on a previously logged off area, or by walking through dense alder growth on a previously excavated logging road. Access to the western portion of the Emory 1 mineral tenure has been impeded by thick underbrush and dense alder growth. Approximately 2.8 kilometers of an alder overgrown road was cleared and approximately 124 meters of new trail access was established on the Emory 1 mineral tenure.

Work was carried out under Mines Act Permit MX-7-166; Approval # 06-1610335-0613, issued June 13, 2006.

Units of measure used in this report are metric. Coordinates on maps are in latitude and longitude or in Universal Transverse Mercator (UTM) projection, using the North American Datum of 1983 (NAD’83).

LOCATION

The Emory Creek Property is comprised of over 1615.58 ha of mineral tenures (6 contiguous tenures) located in southwestern British Columbia on NTS mapsheet 92H/043, approximately 112 kilometers east northeast of Vancouver, British Columbia. The property is located in the vicinity of the headwaters of Emory Creek, located in the northern Cascade Range of British Columbia.
The Emory Creek Property is located immediately to the north and east of the Barrick Gold Inc. crown granted mineral claims situated over the former Giant Mascot Nickel (Pacific Nickel) Mine and is accessed by approximately 21 kilometers of road northwest of Hope, B.C.

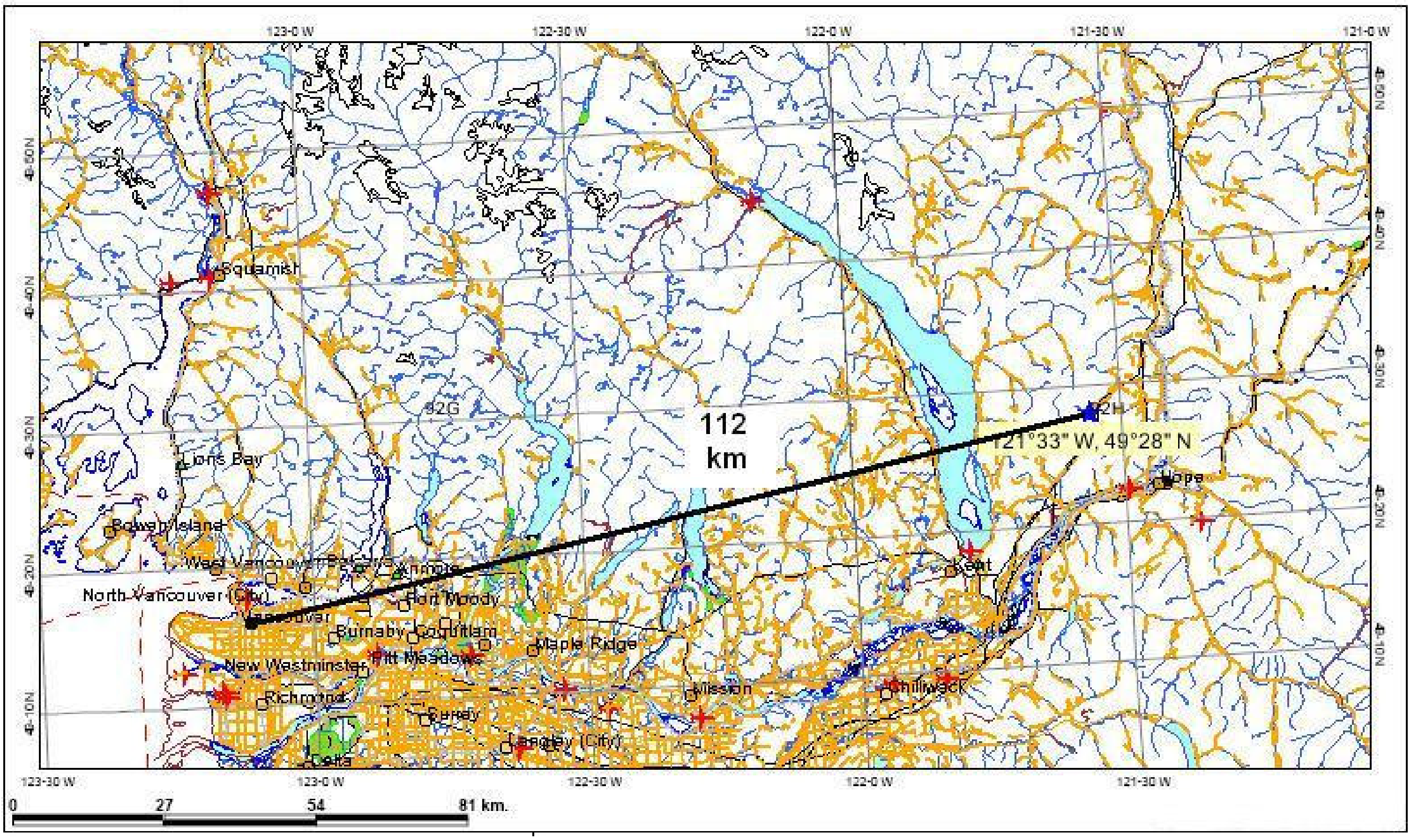

FIGURE 1

LOCATION MAP – EMORY CREEK PROPERTY

M.McCLAREN, P.Geo., January 2007

CLAIMS

The initial Emory Creek mineral claims (Emory 1 and Emory 2) were issued in November 2004 and cover an area previously explored by Santoy Resources Ltd. These claims were acquired by Pacific Coast Nickel Corp. and became part of an agreement with Pacific Nickel Syndicate (E.Dodson,Manager). The additional mineral tenures (Emory II; Emerry 2; Emerry and Emory) were acquired by the Pacific Nickel Syndicate in January and July, 2005 to acquire mineral title of additional areas of geological interest.

TABLE 1

6 Contiguous Mineral Tenures EMORY CREEK PROPERTY

416679	EMORY 1	200123 (100%)	092H043	2009/jan/31	GOOD	NEW WESTMINSTER	375.0
416680	EMORY 2	200123 (100%)	092H043	2009/jan/31	GOOD	NEW WESTMINSTER	500.0
517023	EMORYII	200123 (100%)	092H	2007/jul/12	GOOD	NEW WESTMINSTER	272.879
525142	EMERRY 2	200123 (100%)	092H	2007/jan/12	GOOD	NEW WESTMINSTER	251.818
501408	Emerry	200123 (100%)	092H	2007/jan/12	GOOD	NEW WESTMINSTER	62.961
501448	Emory	200123 (100%)	092H	2007/jan/12	GOOD	NEW WESTMINSTER	146.929
Tenures 6							**TOTAL Ha 1,608.59**

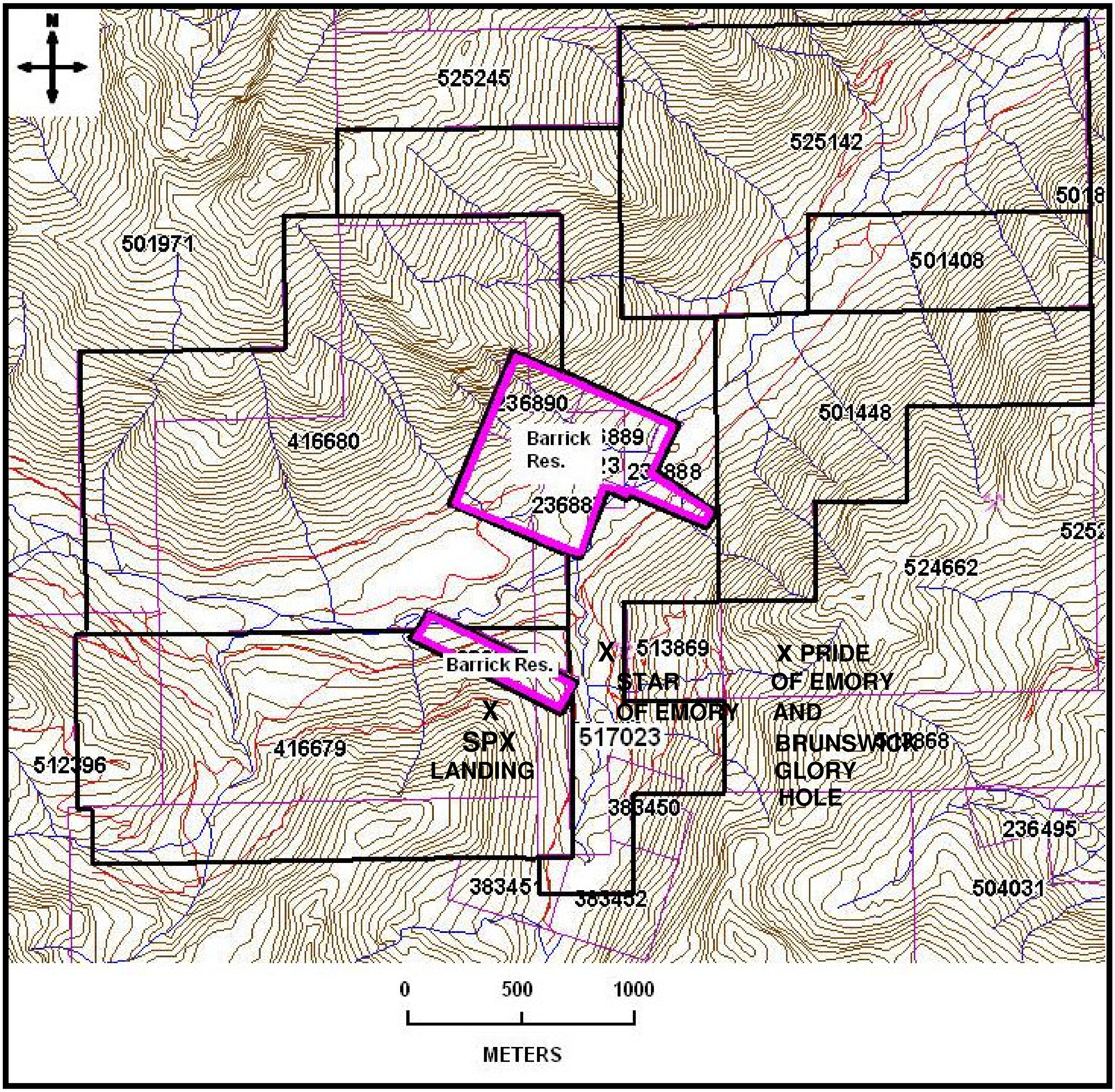

FIGURE 2 **Contour Interval = 20 meters**

TOPOGRAPHIC MAP OF THE EMORY CREEK PROPERTY
M.McClaren, P.Geo., Januray 2007.

PHYSIOGRAPHY, CLIMATE , VEGETATION AND LOGISTICS

The Emory Creek Property area lies in the Cascade Range on the eastern edge of the Pacific Ranges of British Columbia's Coast Mountains. The Cascade Range lies to the east of the Pacific Range and is flanked by and merges in the Kamloops Plateau. Elevation in the area of the property ranges to 1800 meters at the summit of Mount Baird located outside of the northwest corner of the Emory 2 mineral tenure. The majority of the property lies at an elevation of 800 meters to 1300 meters. Vegetation below tree line is typical coast rain forest and comprises cedar, hemlock, spruce trees with alder, willow and cottonwood on old roads and in poorly drained areas. Undergrowth is typically a variable mixture of salal, Devil's club and salmonberry. Tree line varies between 1200 and 1650 m asl. Above tree line the vegetation is alpine, becoming progressively sparser at higher elevations.

Average temperatures at Hope, B.C., approximately 13 km to the southeast of the property, vary from 1.1° C in January to 18.8° C in August. Annual rainfall in Hope is 176.9 cm and an average snowfall of 169.2 cm during the winter months of November to March. Despite this, all major and many subsidiary drainages flow throughout the year. Fieldwork is possible until late October and depending on the year until early-November at nearly any elevation and lower areas are accessible almost year round.

Much of the area of the Emory Creek Property has been extensively logged in previous years. Networks of logging roads cover the property except at high elevation. Most of these roads are in very poor repair, making even poor foot trails. The main access road to the property is by the B.C. Nickel Mine Road (located 6.5 kilometers north of Hope, B.C.; on the Trans Canada Highway) and thence by a well maintained powerline road that branches north at approximately 2.5 kilometers from the B.C. Nickel Mine Road entrance. The powerline road travels north to Emory Creek and can be followed for 15.5 kilometers to the boundary of the Emory 1 mineral tenure.

Previous logging operations and previously excavated roads located on the Emory 1 and Emory 2 mineral tenures are populated by dense underbrush and thick alder growth. This dense and thick vegetation has made access on the Emory Creek Property difficult.

HISTORY

Previous work on the claims by Santoy Resources Ltd. identified nickel-copper mineralization with nickel and copper values up to 0.38 % nickel; 0.76 % copper and 0.09 % cobalt associated with pyroxenite (A.R. 26,876) in an area presently referred to as the SPX landing area. Work carried out by Pacific Coast Nickel Corp. in 2005 (A.R. 28020) consisted of an airborne Aerotem II electromagnetic and magnetic survey of the Emory 1 and a portion of the Emory 2 mineral tenures. The Aeroquest Limited survey resulted in the delineation of several total field magnetic features, one of which coincides with the location of the SPX area and the Star of Emory 3 (Minfile # 092HSW093) nickel-copper occurrence. The Star of Emory 3 occurrence lies approximately 500 meters northeast of the SPX area and was drilled by Giant Mascot Mines Ltd. in 1974 during the period of closure of the Giant Mascot mining and milling operations.

Several weak electromagnetic anomalies were located by the Aeroquest Limited Survey carried out by Pacific Coast Nickel Corp. in 2005. These anomalies are found peripheral to areas of elevated total field magnetic responses. Two of these anomalies are located on the western margin of the magnetic feature that coincides with the SPX and Star of Emory localities. A field examination of the SPX Area in mid-August 2005, identified a large variety of mafic and ultramafic rubble in addition to sulphide mineralization.

Based on the Aeroquest Limited survey data and in conjunction with the geological observations and previous analytical results, Pacific Coast Nickel Corp. decided to do a more detailed ground follow-up on the Emory 1 mineral tenure. The 2006 program consisted of geological mapping, sampling and ground based magnetometer surveys carried out during late September to early November 2006.

GEOLOGY

The Emory Property is within an area mapped as part of the Spuzzum Pluton and is underlain, in large part, by pyroxene and hornblende diorites; tonalite and hornblendized diorites (epidiorites) of the Spuzzum Pluton. On the western boundary of the Emory 1 and Emory 2 mineral tenures, a pendant comprised of a mixed lithologic assemblage is found within a series of stacked thrust sheets. The pendant is enveloped at its eastern margin by tonalite of the Spuzzum Pluton. These pendant lithologies consist of unnamed ultramafics; greenstone and greenschist of the Paleozoic to Mesozoic Cogburn Schist and dioritic intrusive rocks assigned to the Proterozoic to Paleozoic Yellow Aster Complex.

To the east of the Emory 1 mineral tenure is the Pacific Nickel Complex, a crudely zoned peridotite to hornblendite body approximately 2 kilometers by 3 kilometers in size. The central core of the complex consists of 4 peridotite bodies that range in size from 125 meters x 250 meters to 750 meters x 100 meters and are engulfed by pyroxenite and hornblende pyroxenite The pyroxenites and hornblende pyroxenites are rimmed in part by a margin of hornblendite (Pinsent, R.H., 2001).

The Pacific Nickel Complex (PNC) contained a number of nickel and copper orebodies that were mined between the period of 1958 to 1974. The Giant Mascot (Pacific Nickel) Mine produced approximately 4 191 035 tonnes of ore averaging 0.77% Ni and 0.34% Cu, and shipped approximately 3.23 tonnes of nickel and 1.43 tonnes of copper between 1958 and 1974 (Tindall,1987) and was the only nickel producer in the province.

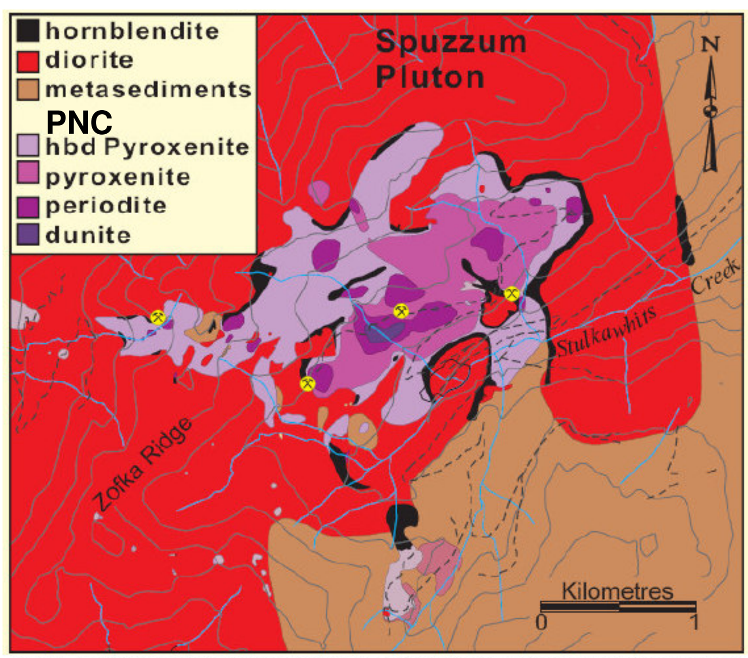

FIGURE 3

Geology of Giant Mascot Nickel Mine Area: Ash, C and Green, M., (2002). After Aho, A.E., 1953.
(Yellow filled circle with cross hammers indicates orebody location)

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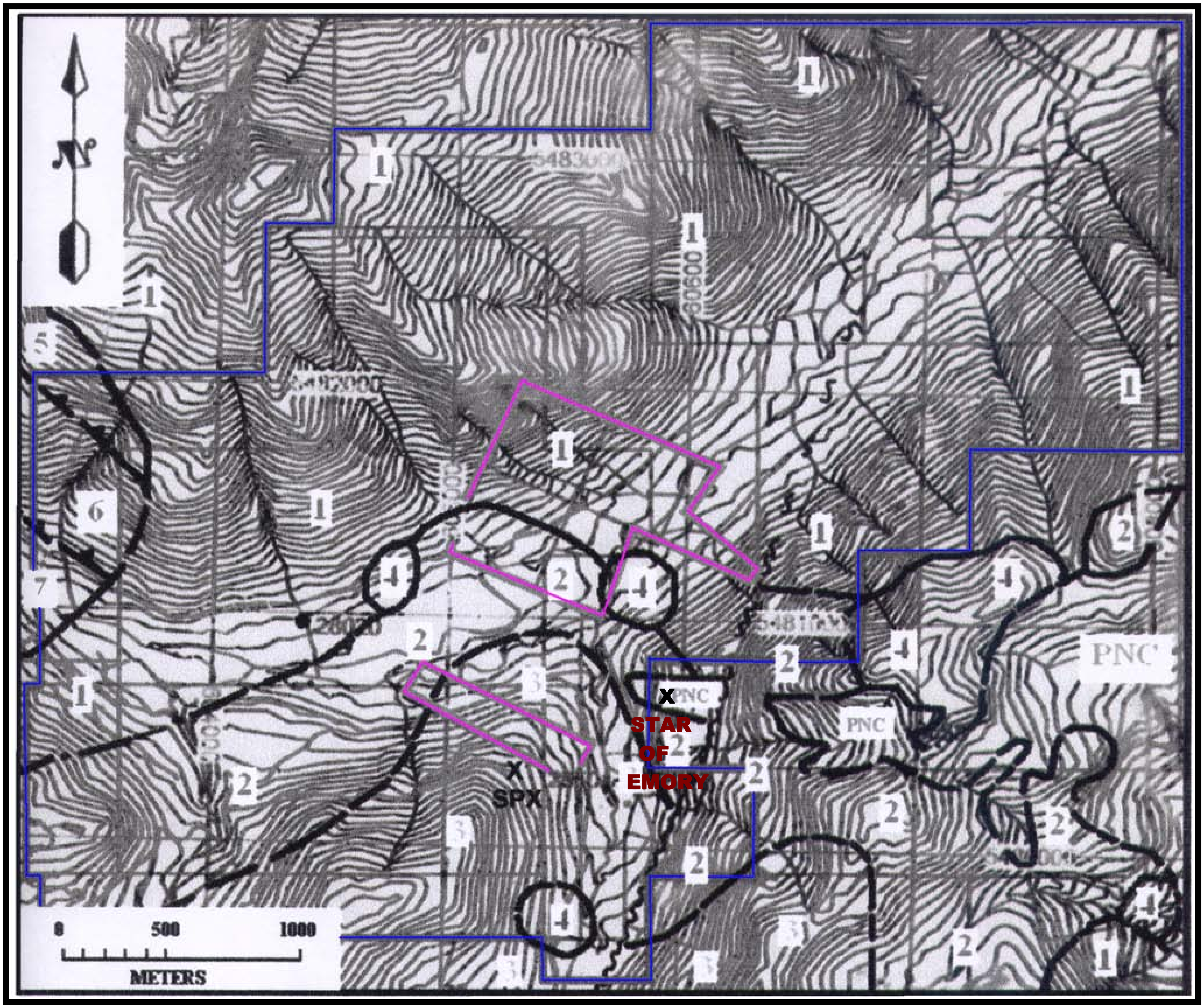


FIGURE 4

GENERALIZED GEOLOGICAL MAP OF EMORY CREEK PROPERTY
After: VINING, M.R., 1977 and MONGER, J.W.H., 1989.
UTM ZONE 10 NAD 83 CONTOUR INTERVAL 20 METERS
M.McClaren P.Geo., January 2007

LEGEND FOR FIGURE 4

1 Spuzzum Pluton Tonalite

2 Spuzzum Pluton Hornblende Diorite

3 Spuzzum Pluton Pyroxene Diorite

4 Spuzzum Pluton Hornbledized Diorites and Tonalite

5 Yellow Aster Complex
Dioritic Intrusive Rocks

6 Unnamed Ultramafic Rocks

7 Cogburn Schist
Greenstone; greenschist metamorphic rocks

PNC Ultramafic Complex (Pacific Nickel Complex)

FAULT

THRUST

HIGH ANGLE

POSITION KNOWN APPROX. UNCERTAIN

CONTACT

APPROX. UNCERTAIN

BARRICK RES.
PROPERTY BOUNDARY

PACIFIC COAST NICKEL CORP.
PROPERTY BOUNDARY

X SPX LOCATION OF SPX LANDING AREA

• 28020 Assessment Report Number

SPUZZUM PLUTON IN THE EMORY CREEK PROPERTY AREA

TONALITE: Largely composed of anhedral quartz and biotite, subhedral hornblende and plagioclase (An_{50} – An_{32}). Locally foliated; locally hornblendized to resemble hornblende gabbro. Shows a gradational and conformable contact with metamorphic rocks. Small to large zenoliths of gneiss and schist are included in tonalite in all parts. Tonalite was considered to be younger than diorites of the Spuzzum Pluton (Richards, T., 1971) and considered to be contemporaneous with other diorites of the Spuzzum Pluton by Vining, M.R., 1977. There is no presence of pyroxene with the tonalities. (Vining, M.R., 1977).

DIORITE: Vining, M.R., 1977, subdivided the Spuzzum dioritic rocks on the basis of the relative abundance of hydrous versus anhydrous mafic minerals. Two categories were defined:

(1) **PYROXENE DIORITE**: Pyroxene >hornblende + biotite (+chlorite). Minute inclusions of hematite in plagioclase feldspars commonly give it a pink colour. The average anorthite content is An_{53} and ranges from a low of $An_{43.7}$ to a high of $An_{62.1}$ (Vining, M.R., 1977).The more calcic pyroxene diorites have some petrographic similarity to norites found associated with the Pacific Nickel Complex (Clark,W.E.,1969 and Aho,A.E.,1954). The petrological characteristics of the norites found associated with the Pacific Nickel Complex are as follows: The norites average An_{60} but range to An_{85} in rarer calcic varieties. Normal and oscillatory zoning are common, with composition ranging from An_{45} to An_{25} from core to rim of some sections. Small dustlike inclusions (exsolved hematite), are concentrated in the centres of the plagioclase and give many of the rocks a pink colour (Aho, A.E.,1954).
Pyroxenes in the Pacific Nickel Complex norites is orthopyroxene with a forsterite content of Of_{15} (bronzite). In the diorites, orthopyroxene ranges from Of_{20} to Of_{36} (hypersthene) (Aho, A.E.,1954).

(2) **HORNBLENDE DIORITE**: Hornblende > pyroxene. Pyroxene < 10% and hornblende > 10% + biotite + plagioclase. Plagioclase has an average composition of $An_{47.5}$ and ranges from a low of $An_{41.2}$ to a high of $An_{53.8}$. (Vining,M.R.,1977).

(3) **HORNBLENDIZED DIORITE (EPIDIORITE) AND TONALITE**: Rocks believed to have formed by the hornblendization of diorite or tonalite are characterized by the abundance of hornblende, with plagioclase and perhaps quartz and biotite, but no pyroxene. These rocks grade into normal diorite or tonalite. Ultramafic bodies are closely associated with hornblendized rocks. Pyroxenes (predominately hypersthene) may be found in transitions to diorite and occur as corroded relicts in hornblende clots (Vining,M.R.,1977).

GEOLOGICAL MAPPING

Geological mapping was carried out in the SPX area and adjacent areas to the east and west. In the SPX area, pyroxene diorites of the Spuzzum Pluton display thermal and metasomatic effects of both a textural and mineralogical variability (in particular: the proportions of pyroxene and amphibole). The textural and mineral constituent variability occurs both randomly and gradually and over considerable distances that renders the extrapolation of any subdivision of altered diorites from outcrop to outcrop difficult. These lithologies have been mapped as altered pyroxene diorite and some specific features that have been noted are as follows:

1. Granofels: The term granofels is used to denote a medium grained; equigranular rock lacking foliation or lineation. The granofels is believed to be the result of mafic-ultramafic intrusive thermal action on pyroxene diorite, The rock is fine grained and has a "sparkly" appearance. Hematite that is usually found evenly dispersed throughout the feldspathic constituents of pyroxene diorite may be found as irregular shaped hematitic feldspathic segregations in granofelsic rocks.

2. Hornblendization: The reconstituted pyroxene diorite may have, in part or in whole, replacement of its pyroxene constituents by hornblende. The resultant rock resembles a hornblende gabbro.

3. Hornblendite Schlieren: Occur as thin (up to 5 cm) streaks and layers and is found associated with hornblende gabbro.

4. Tiling: Pyroxene diorite transformed into a "layered assemblage" where the felsic components and associated hematite inclusions are segregated from pyroxene rich, elongate lenses with undulating borders.

5. Brecciation: In specific areas, pyroxene diorite is brecciated and veined by medium to coarse grained hornblende gabbro. Redistribution of hematite is apparent and is localized to the periphery and the internal feldspathic constituents of the hornblende gabbro.

6. Disaggregation: Pyroxene diorite is partially dismembered by peridotite (?) and a "spotty" appearance to the diorite is created. Irregular shaped bodies of pyroxene diorite occur within peridotite (?) and peridotite (?) forms fingers and lobes within diorite.

7. Assimilation: Pyroxene diorite intruded by pyroxenite. Pyroxenite may be found as heterogeously distributed enclaves with mingling features or may be massive with "streaky" remnants of the feldspathic component of the pyroxene diorite.

RESULTS OF GEOLOGICAL MAPPING

Altered pyroxene diorite extends for 800 meters to the west of the SPX landing (see Figure 4). Approximately 80 meters to the north northwest of the SPX landing, brecciated pyroxene diorite is veined by medium grained to porphyritic hornblende gabbro. At 200 meters to the northeast of the landing, tiled pyroxene diorite is cut by small, irregular shaped intrusions of pyroxenite (trend westerly and subvertical). At 200 meters north of the landing, in a road spoil quarry, a mixed assemblage of hornblende epidiorite and pyroxene diorite are exposed.

A hornblende pyroxenite dike (500 meters west of the landing) is approximately 3 to 5 meters in width and intrudes pyroxene diorite. This hornblende pyroxenite dike trends W20N/50S and is closely associated with a variety of altered pyroxene diorite lithologies (see Plate 1, Plate 2, Plate 13 and Plate 14). In the same area, a pegmatitic hornblende gabbro veinlet with abundant phlogopite crosscuts hornblendized diorite and trends W/85S.

At 300 meters from the SPX landing and on the upper SPX road, hornblendite schlieren is hosted by hornblende epidiorite (see Plate 5 and Plate 6). The schlieren trends N40W/50NE.

The ultramafic body located at the SPX landing area outcrops intermittently over a distance of approximately 30 meters. The western contact of the ultramafic body with the pyroxene diorites is sub-vertical and the pyroxene diorites are variably altered to gabbros that are cut by thin pyroxenite (?) veinlets. Peridotites (?) and pyroxenites can be traced for a distance of approximately 30 meters east of the epidiorite contact. The easterm portion of the SPX landing area is obscured by a rock slide which covers a previously excavated area. Large angular blocks of various ultramafic lithologies are scattered throughout the landing area and represent previously exposed ultramafic lithologies. Rubble of mineralized pyroxenites is found in the SPX area. The intrusion of the ultramafic body has transformed the host pyroxene diorite for a distance of 800 meters westerly and approximately 200 meters northerly. The limits of alteration are unknown to the south and east.

A collection of 18 rock samples from the SPX area were submitted to Petroscience Consultants and 1 sample was submitted to Vancouver Petrographics for petrographic analysis. Descriptions of these samples accompany this report as Appendix 5.

A magnetometer survey conducted in the SPX area (see Figure 6 and Figure 8) outlined a west 20 degree north trending body 80 meters in length and approximately 35 meters in width. This is thought to represent the surface extent of the ultramafic assemblage.

At a distance of approximately 1.2 kilometers to the east of the SPX landing area, pyroxene diorite is exposed on the western bank of a northerly flowing creek. At a distance of 270 meters west of this outcrop the pyroxene diorites are brecciated and in places granofelsic. The brecciated portions of the pyroxene diorite are intruded by pegmatitic hornblende gabbro (see Plate 9) and resemble breccias noted 80 meters north northwest of the SPX landing (see Plate 8). Previous geophysical results from an airborne Aerotem II survey carried out by Pacific Coast Nickel Corp. in 2005 (A.R. #28020) indicates mafic-ultramafic intrusives in the western portion of the Emory 1 mineral tenure.

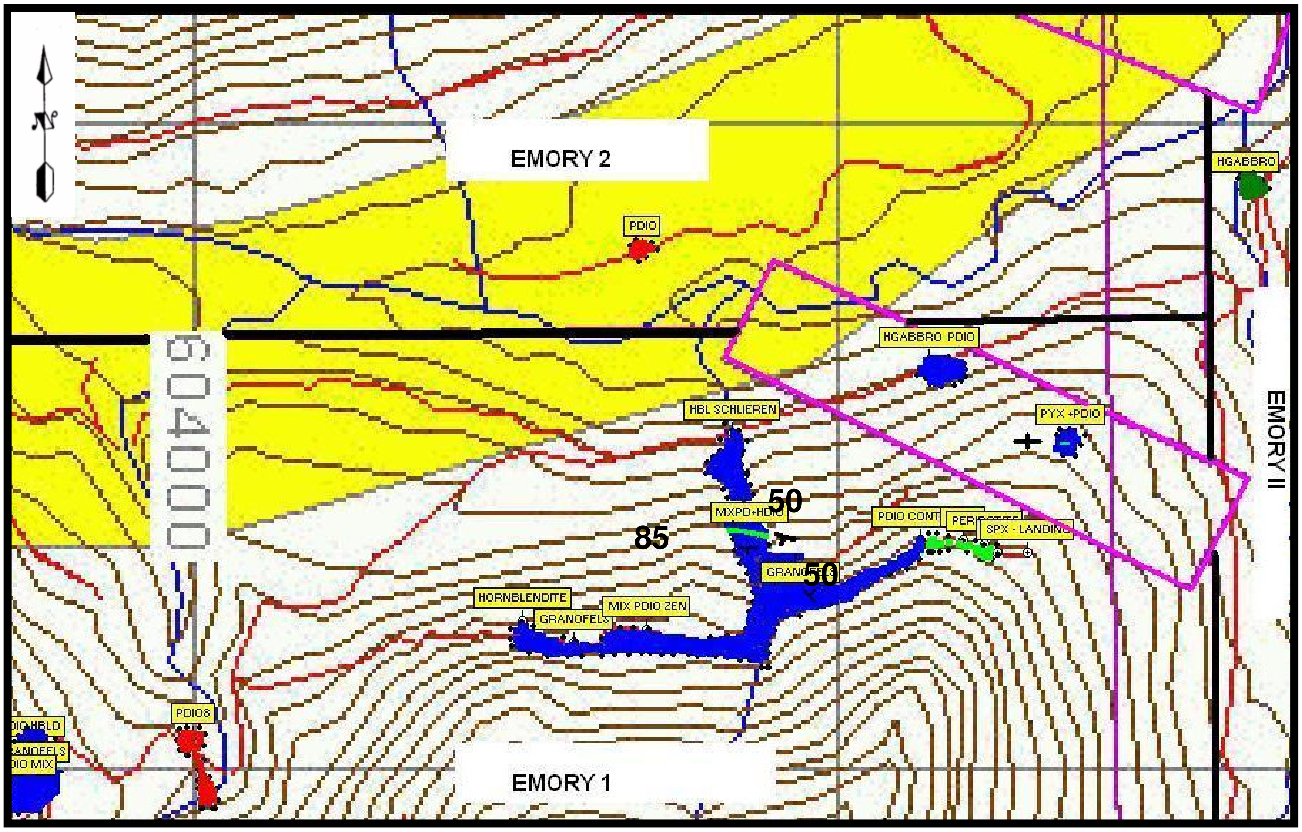


FIGURE 5
CONTOUR INTERVAL = 20 MTS.

0 100 200 300 400 500 1000
METERS

1:10,000

QUATERNARY SEDIMENTS

ALTERED PYROXENE DIORITE

HORNBLENDIZED DIORITE AND/OR TONALITE (HORNBLENDE GABBRO)

PYROXENE DIORITE

SPX ULTRAMAFIC ASSEMBLAGE

Strike and Dip

SPX AND SURROUNDING AREA GEOLOGY
M.McCLAREN, P.Geo., January 2007.

PLATE 1

Granofels (below and right of hammer) associated pyroxene diorite (with hammer and to upper left) and hornblendized pyroxene diorite (to upper right and bottom of picture).

PLATE 2

Granofels enclosed by pyroxene diorite (center of picture) and hornblende pyroxenite (adjacent to hammer head).

PLATE 3

Hornblendization of pyroxene diorite.

PLATE 4

Hornblendite fingering in hornblendized pyroxene diorite.

PLATE 5

Hornblende schlieren hosted by hornblende epidiorite.

PLATE 6

Hornblende schlieren hosted by coarse to fine grained hornblende epidiorite.

PLATE 7

Tiling of hematitic plagioclase and pyroxenes in altered pyroxene diorite. Irregular shaped pyroxenite intrusion (upper right of photo).

PLATE 8

Brecciated granofelsic pyroxene diorite with coarse grained hornblende. (SPX area)

PLATE 9

Brecciated pyroxene diorite with coarse grained hornblende. (Approx. 1.5 km west of SPX area)

PLATE 10

Mottled and disaggregated pyroxene diorite at contact with peridotite (?).

PLATE 11

Pyroxenite enclaves in altered pyroxene diorite.

PLATE 12

Assimilation of pyroxene diorite by pyroxenite.

PLATE 13

Hornblende pyroxenite dyke with internal leucosomes. (Brunton pointing North).

PLATE 14

Irregular cuspate contact with hornblendized pyroxene diorite and hornblende pyroxenite dyke. (Brunton pointing North).

GEOPHYSICS

Magnetic Survey

A GEM Systems, Inc., GSM-19 v. 7.0 portable high-sensitivity Overhauser effect magnetometer designed for hand-held use was used as a mobile /walkmag instrument. This instrument was used in conjunction with a GEM Systems, Inc., GSM-19 v. 5.0 magnetometer that collected base station total magnetic field intensity readings. Survey signal quality of the mobile/walkmag unit was monitored during the survey and any poor signal readings were repeated until a quality signal was obtained. Readings of the earth's total magnetic field were taken every 7.5 meters along grid lines with an approximate separation of 35 meters on the SPX grid (see Figure 6) with the GSM-19 v.7.0 mobile/walkmag magnetometer. The diurnal variation was monitored in the field by a base station (GSM-19 v. 5.0) at a common site, located at 604955 E and 5480268 N (UTM NAD 83 Zone 10). With the SPX Walkmag Survey readings were taken from UTM 604955 E and 5480268 N (UTM NAD 83 Zone 10) at a 15 meter spacing for a distance to the west of approximately 700 meters. The diurnal variation was monitored in the field by a base station at a common site, located at 604955 E and 5480268 N (UTM NAD 83 Zone 10). To facilitate this, the surveying unit was initialized with the base station at a common site, located at 604955 E and 5480268 E. The surveying unit (mobile/walkmag) was initialized with the base station unit at the beginning of the surveying, so that each of the units had the exact same time. In addition, readings were taken with the mobile/walkmag magnetometer at the base station site at the end of each day of surveying.
Readings of the earth's total magnetic field were take every 25 meters along the Powerline and Spur Road Walkmag Survey lines (see Figure 5). The diurnal variation was monitored in the field by a base station at a common site, located at 605621 E and 5480744 N (UTM NAD 83 Zone 10). To facilitate this, the surveying unit was initialized with the base station at a common site, located at 605615 E and 5480742 N (UTM NAD 83 Zone 10) at the beginning of the surveying, so that each of the units had the exact same time. In addition, readings were taken with the mobile and walkmag magnetometer at the base station site at the end of each day of surveying.

Magnetic Survey Data Handling

The mobile/walkmag (surveying unit) magnetometer magnetic data was dumped into a computer with the surveying unit interconnected with the base station unit thus enabling the magnetic data to be automatically corrected for diurnal variation. Then, using Geosoft software, the data were reduced, plotted, and contoured onto plan maps (Figure 8; Figure 9 and Figure 10 respectively) for the SPX grid; SPX Upper Road Walkmag; Powerline Road and Spur Road.
A compilation of the geological and geophysical results is presented in Figure 11.

Purpose of Survey and Results

The magnetometer survey was carried out in order to define areas of mafic-ultramafic lithologies. This survey was successful in outlining the SPX ultramafic assemblage that has a magnetic signature of approximately 80 meters by 35 meters. A compilation of all the magnetic surveys appears to indicate a similar magnetic anomaly as obtained by Aeroquest Limited during an airborne survey conducted in 2005 (Ass. Rept. # 28020).

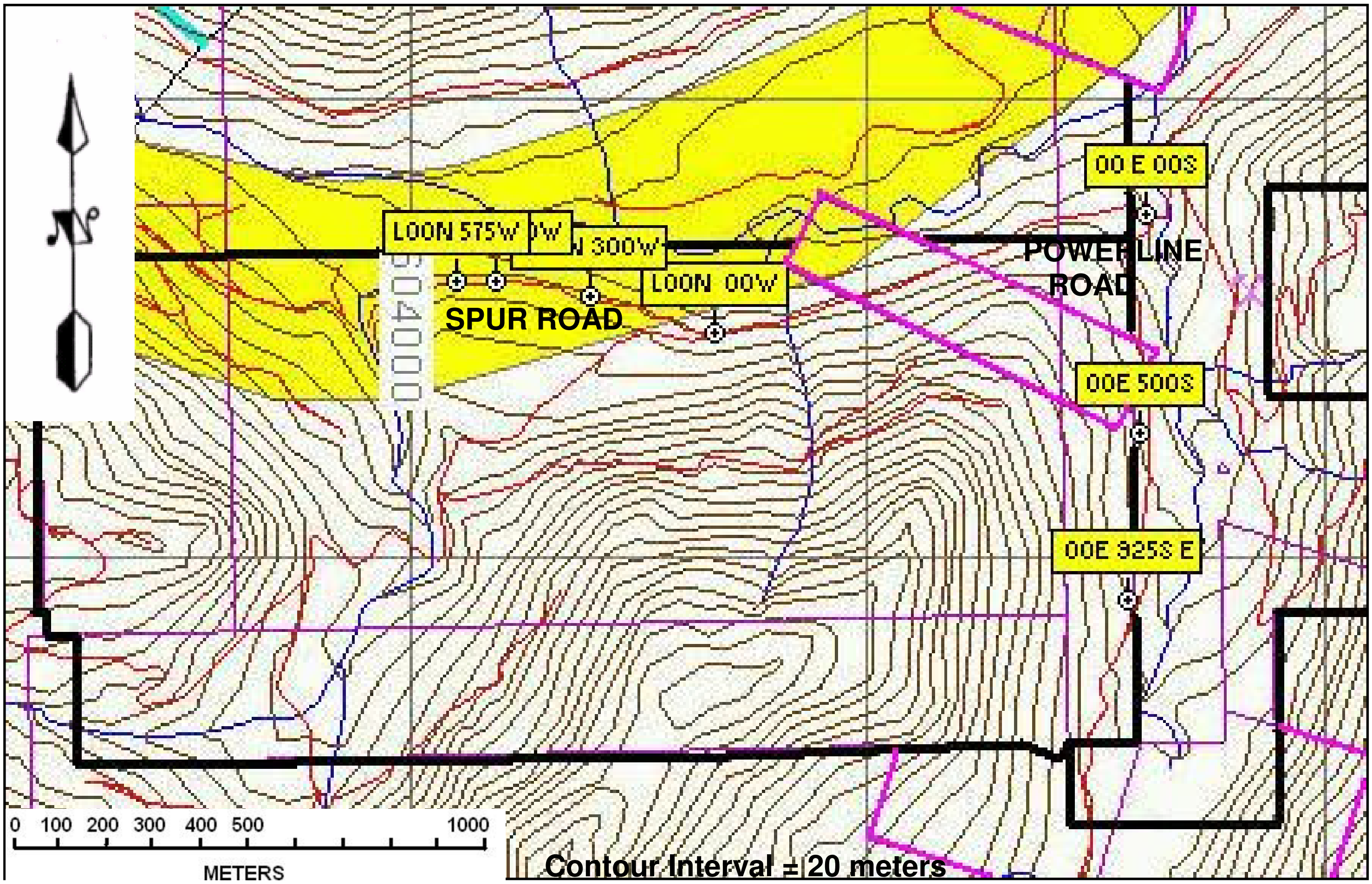


FIGURE 6 LOCATION MAP OF SPUR ROAD AND POWERLINE SURVEY

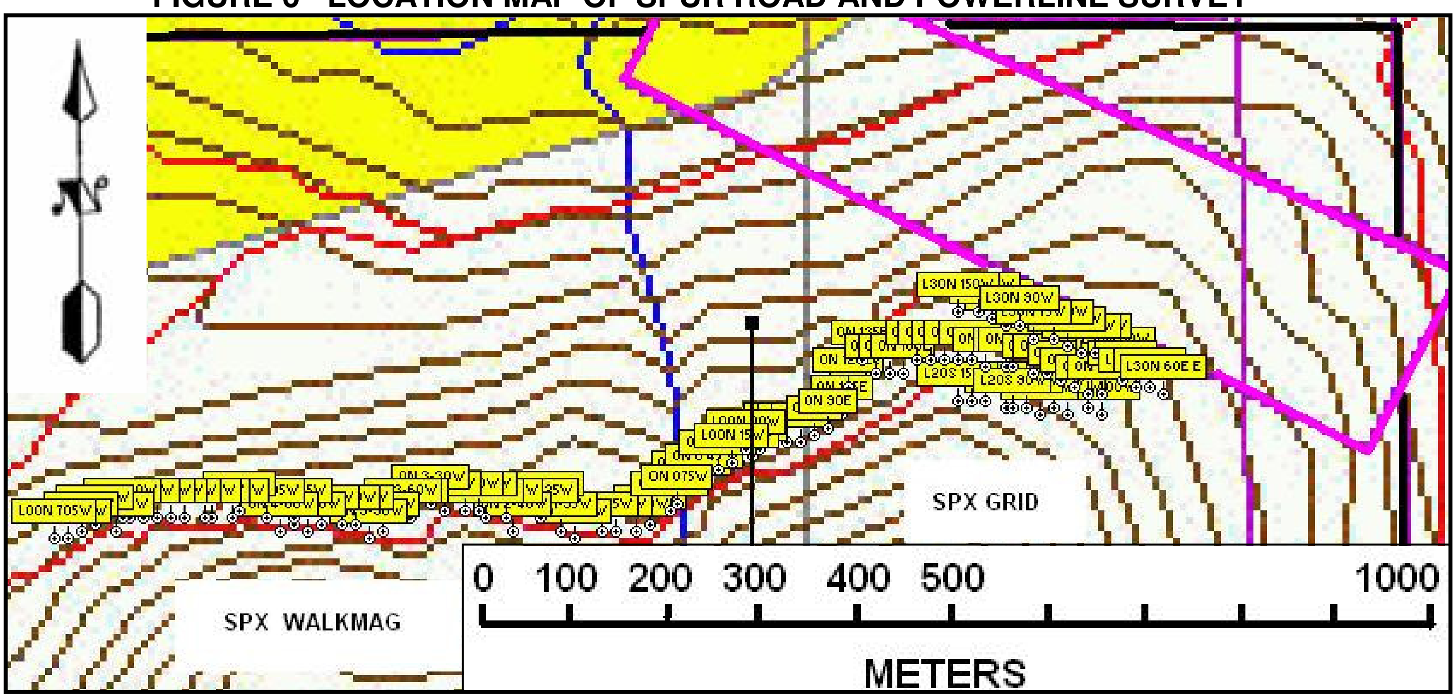
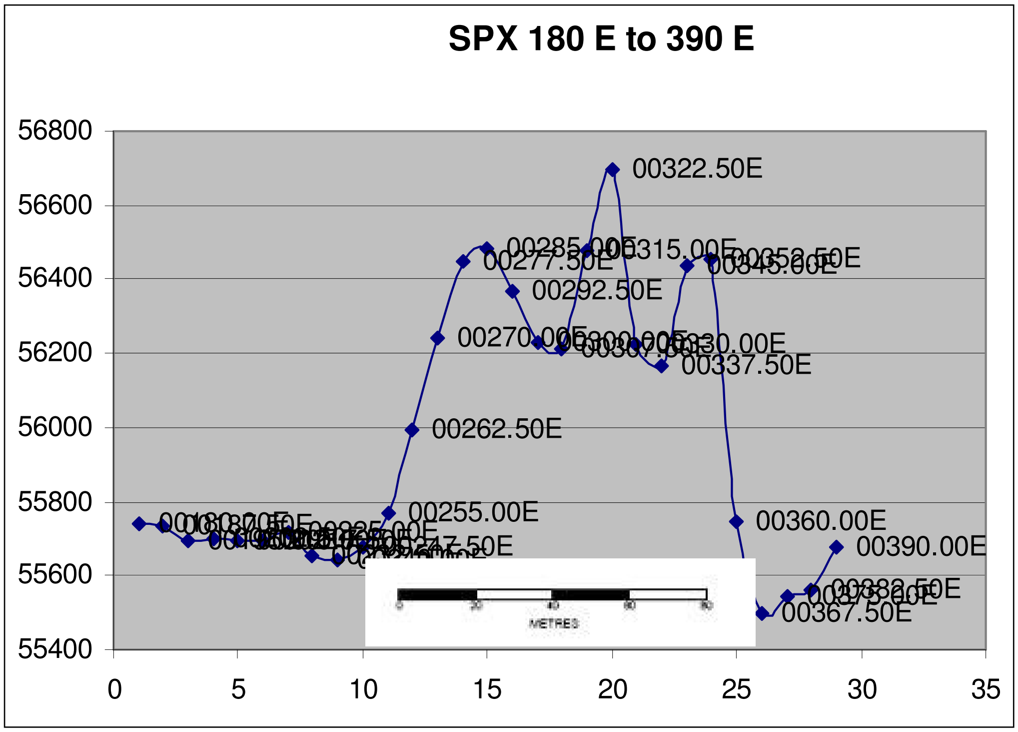


FIGURE 7 LOCATION MAP OF SPX WALKMAG AND SPX GRID C.I. = 20 meters

Vertical Scale:
200 nT /Horizontal Line

FIGURE 8

M.McClaren, P.Geo.
January 2007.



PROFILE: SPX GRID ON 180 E TO 390 E

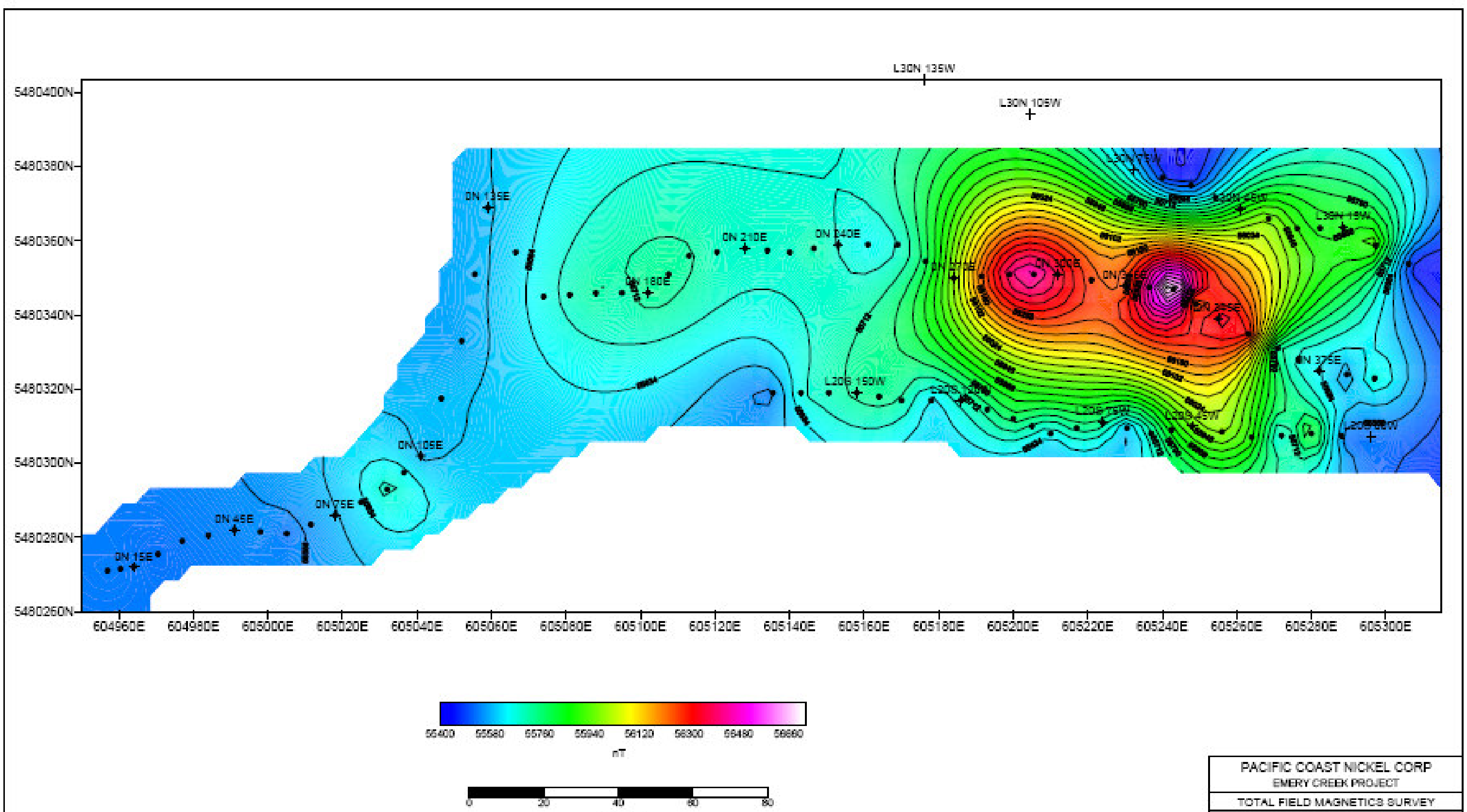


FIGURE 9

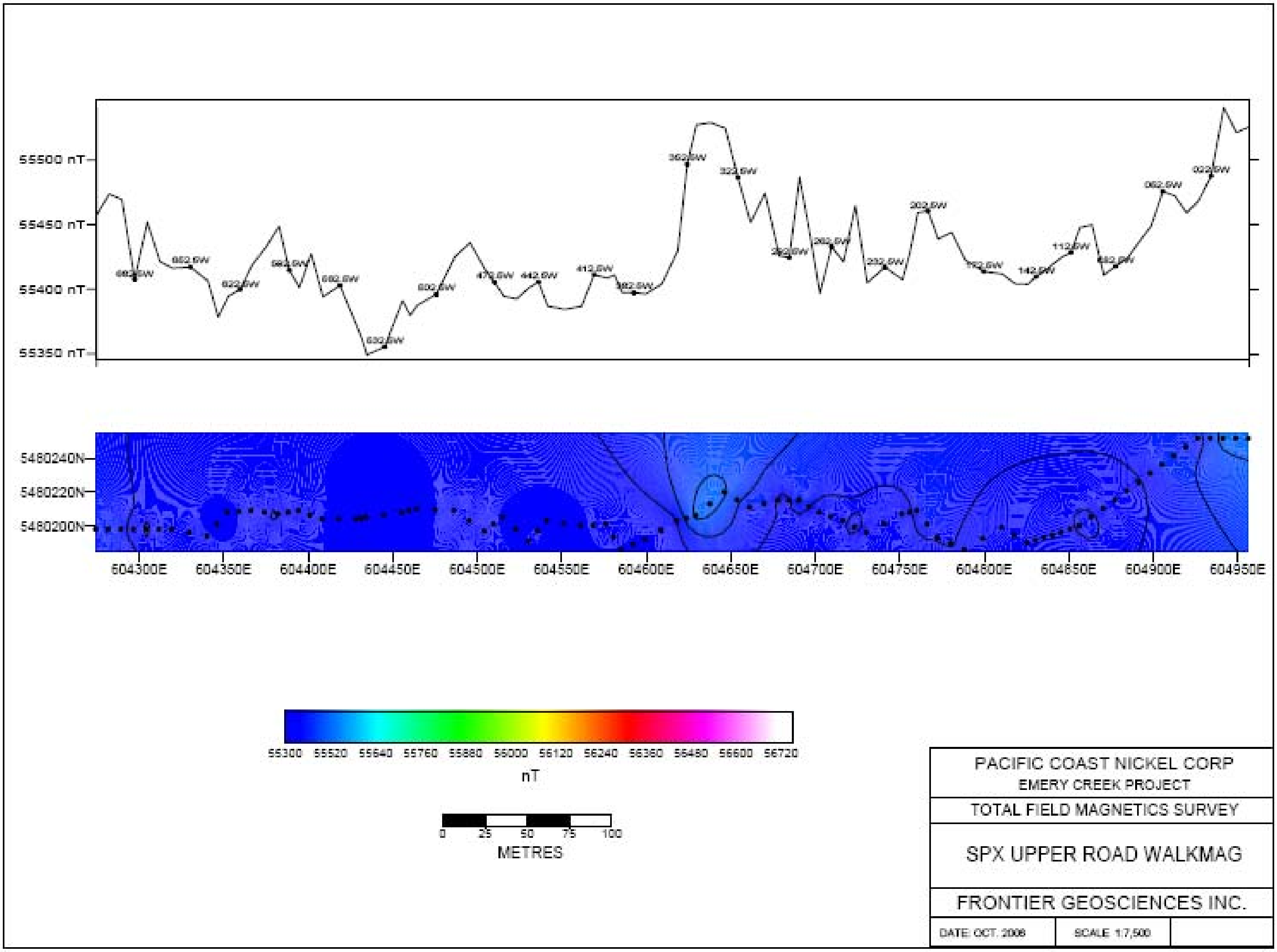


FIGURE 10 **SPX UPPER ROAD WALKMAG**

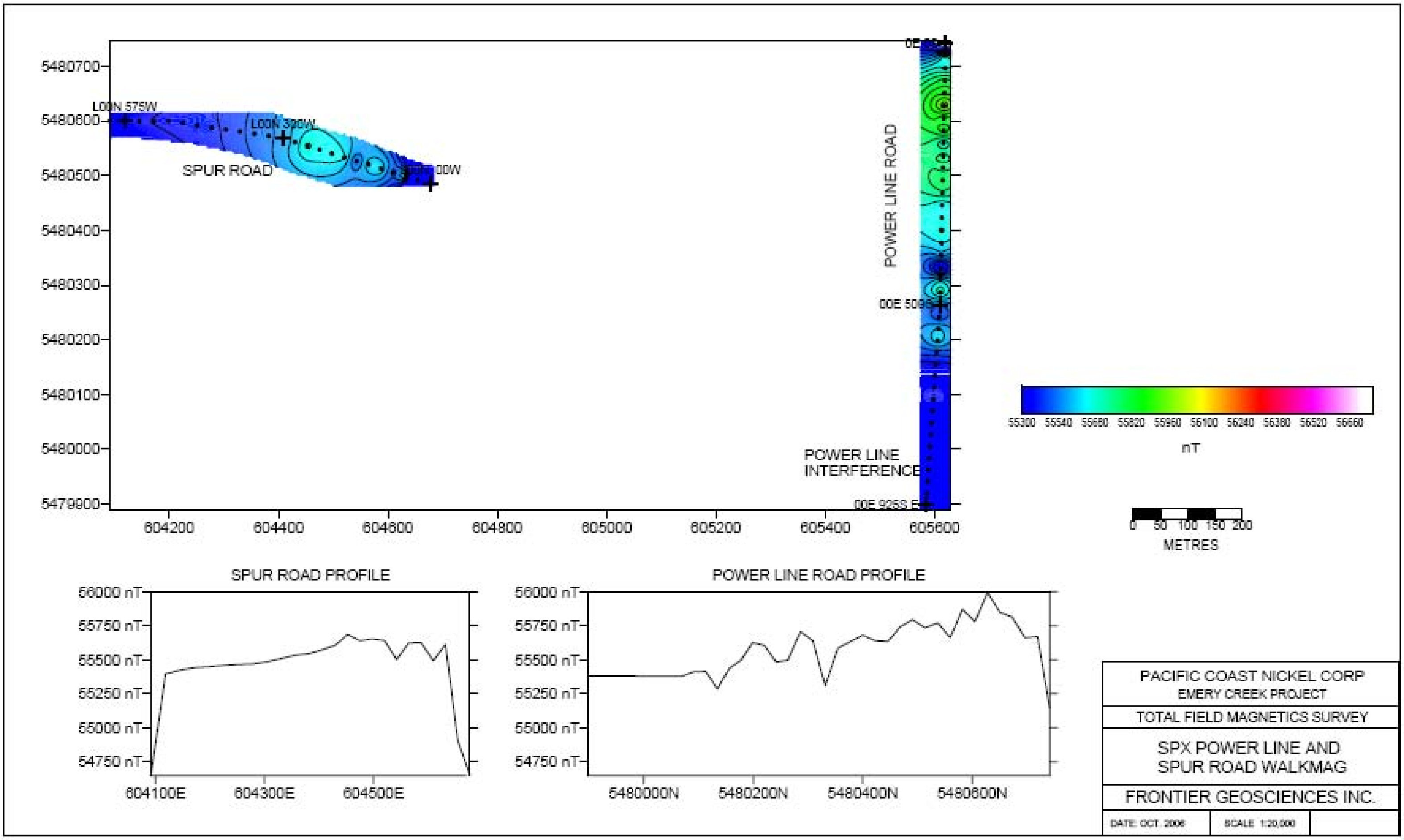


FIGURE 11 **SPUR ROAD AND POWERLINE ROAD**

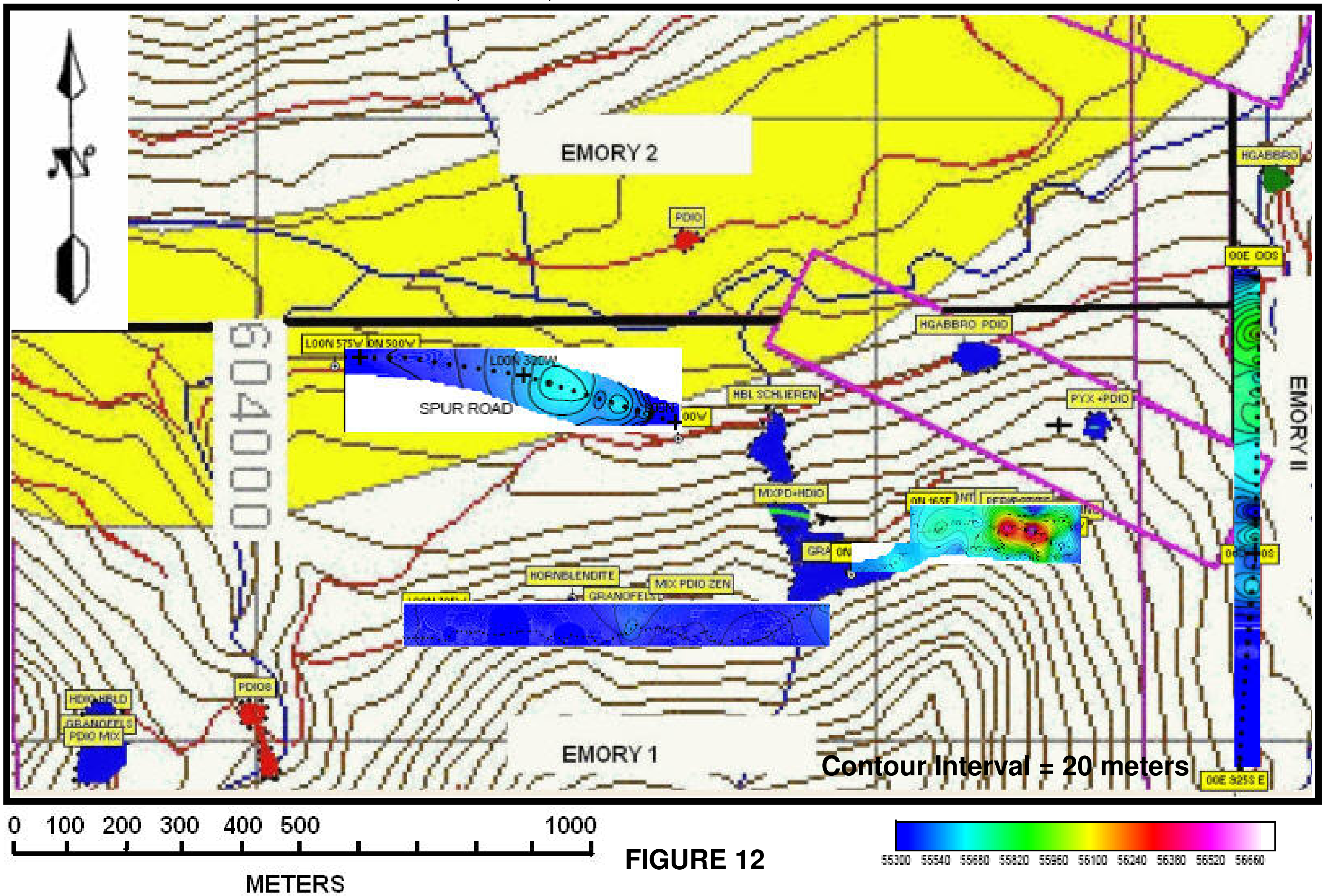
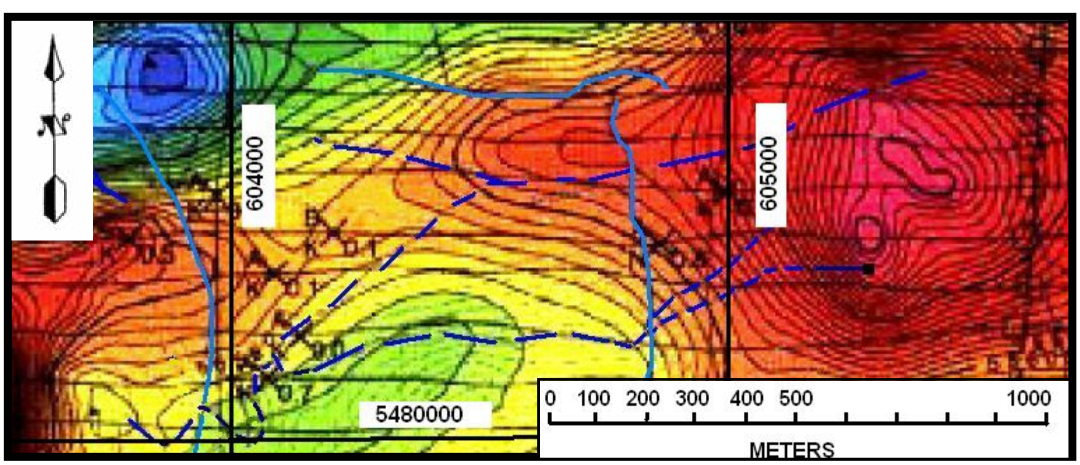


FIGURE 12

COMPILATION MAP OF GEOLOGICAL AND MAGNETOMETER SURVEYS



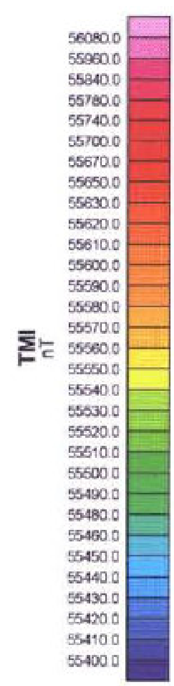


FIGURE 13 PORTION OF TOTAL MAGNETIC INTENSITY MAP
AEROQUEST LIMITED REPORT, JUNE 2005.
M.McClaren, P.Geo., January 2007

SAMPLING

HEAVY MINERAL CONCENTRATE SAMPLING

Six samples (EM 2 ; EM 3 and EM 5 to EM 8) were taken at various locations on the Emory 1, Emory 2 and Emory II mineral tenures and one sample at approximately 250 meters south of the Emory II mineral tenure southern boundary (EM-4), were collected during the 2006 field season. The purpose of the sampling was to determine the presence of indicator elements for the presence of nickel –copper +/- PGM. The heavy mineral concentrates were obtained by taking sediment from the creeks and sluicing the sediments with a portable sluice box. Enough material was passed through the sluice in order to obtain a sample of approximately 0.2 kg in weight. The heavy minerals were collected from the mat of the sluice box and placed into a plastic sample bag and sealed. In addition to the heavy mineral concentrates, two samples were taken from the SPX landing; one of soil and the other of rock fines (EM 1 SOIL and EM 1 ROCK). The soil sample was taken from the exposed soil on the northern side of the SPX landing and 0.4 kilograms of B horizon soil was sampled. The soil was placed into a plastic sample bag and sealed. The rock fines sample consisted of a composite of rock fines (<2.5 cm in size) taken from the SPX landing area. A 1.86 kg sample was collected and placed into a plastic sample bag and sealed.
A collection of 8 pyroxenite samples (SPX-1 to SPX-8) that had indications of sulfide mineralization were collected from rubble at the SPX area and placed into plastic sample bags. One of these samples, SPX-3, was chosen for petrographic analysis and analysed at a later date.

ANALYTICAL PROCEDURES

ALS Chemex carried out all the analytical test work. The preparation and analytical procedures for each of the sample types is as follows:

Heavy Mineral Concentrate

Sample was pulverized such that 85% of the sample passed through -75 um mesh. The 0.25 gram sample was digested in a four acid digestion treatment and analysed by the induced coupled plasma technique for 27 elements. A 30 gram sample was analysed for Pt, Pd and Au by fire assay with an induced couple plasma finish.

Soil Sample

The soil sample was screened to -180 um and dried at a temperature of 60 degrees Celsius. A 0.25 gram sample was digested in a four acid digestion treatment and analysed by the induced couple plasma technique for 27 elements. A 30 gram sample was analysed for Pt, Pd and Au by fire assay with an induced couple plasma finish.

Rock Sample Fines and Rock Samples

The samples were crushed to 70% passing <2mm; split by riffle splitter and then the split portion was pulverized to 85% < 75 um. The 0.25 gram sample was digested in a four acid digestion treatment and analysed by the induced coupled plasma technique for 27 elements. A 30 gram sample was analysed for Pt, Pd and Au by fire assay with an induced couple plasma finish.

ANALYTICAL RESULTS

The analytical results for these samples are tabulated as follows:

HEAVY MINERAL CONCENTRATE SAMPLES (EM 2 TO EM 8)

	PGM-ICP23	PGM-ICP23	PGM-ICP23	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61
SAMPLE	Au	Pt	Pd	Co	Cr	Cu	Fe
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	%
EM 2	0.009	0.005	0.001	39	1030	16	17
EM 3	0.003	<0.005	0.001	78	1170	125	11.9
EM 4	0.004	<0.005	<0.001	28	257	13	13.6
EM 5	0.008	<0.005	<0.001	12	256	10	10.55
EM 6	0.094	<0.005	<0.001	26	360	13	11.25
EM 7	0.046	<0.005	0.005	22	1110	15	7.77
EM 8	0.002	<0.005	<0.001	25	343	10	9.99

	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61
SAMPLE	Mg	Ni	P	Sb	Zn
DESCRIPTION	%	ppm	ppm	ppm	ppm
EM 2	4.89	78	320	12	143
EM 3	13.65	434	180	5	107
EM 4	3.78	32	1210	17	140
EM 5	1.67	29	380	10	86
EM 6	3.47	49	460	8	121
EM 7	2.63	68	410	<5	91
EM 8	3.69	69	310	5	113

SOIL SAMPLE – SPX LANDING AREA (EM 1)

	PGM-ICP23	PGM-ICP23	PGM-ICP23	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61
SAMPLE	Au	Pt	Pd	Co	Cr	Cu	Fe
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	%
EM 1 SOIL	0.003	<0.005	<0.001	13	243	60	4.53

	ME-ICP61	ME-ICP61	ME-ICP61	ME ICP61	ME -ICP61
SAMPLE	Mg	Ni	P	Sb	Zn
DESCRIPTION	%	ppm	ppm	ppm	ppm
EM 1 SOIL	1.69	63	730	<5	57

ROCK SAMPLE FINES – SPX LANDING AREA (EM 1)

	PGM-ICP23	PGM-ICP23	PGM-ICP23	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61
SAMPLE	Au	Pt	Pd	Co	Cr	Cu	Fe
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	%
EM 1 ROCK	0.001	0.015	0.001	26	362	56	5.15

	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61
SAMPLE	Mg	Ni	P	Zn
DESCRIPTION	%	ppm	ppm	ppm
EM 1 ROCK	3.9	119	680	87

ROCK SAMPLES – SPX AREA (EM 1)

	ME-ICP61a	ME-ICP61a	ME-ICP61a	ME-ICP61a	ME-ICP61a	ME-ICP61a	ME-ICP61a	ME-ICP61a	ME-ICP61a
SAMPLE	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co
DESCRIPTION	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm
SPX-1	<1	1.76	<50	<50	<10	<20	6.7	<10	170
SPX-2	<1	1.59	<50	<50	<10	<20	7.09	<10	190
SPX-3	<1	1.64	<50	<50	<10	<20	6.79	<10	190
SPX-4	<1	1.78	<50	<50	<10	<20	6.67	<10	150
SPX-5	<1	1.47	<50	<50	<10	<20	6.15	<10	160
SPX-6	<1	1.6	<50	<50	<10	<20	7.26	<10	270
SPX-7	1	1.62	<50	<50	<10	<20	7.53	<10	220
SPX-8	<1	1.55	<50	<50	<10	<20	7.65	<10	190

	Cr	Cu	Fe
	ppm	ppm	%
SPX-1	600	630	10.85
SPX-2	550	1000	11.4
SPX-3	720	870	11.45
SPX-4	760	630	11.2
SPX-5	750	1390	11.5
SPX-6	580	800	13.3
SPX-7	570	790	12.1
SPX-8	810	690	11

	ME-ICP61a Ga ppm	ME-ICP61a K %	ME-ICP61a Mg %	ME-ICP61a Mn ppm	ME-ICP61a Mo ppm	ME-ICP61a Na %	ME-ICP61a Ni ppm	ME-ICP61a Pb ppm	ME-ICP61a S %
SPX-1	<50	<0.1	12.2	1460	<10	0.26	700	<20	2.6
SPX-2	<50	<0.1	11.25	1440	<10	0.26	1530	<20	2.9
SPX-3	<50	<0.1	12.35	1410	<10	0.22	890	<20	3
SPX-4	<50	<0.1	13.05	1560	<10	0.23	600	20	2.2
SPX-5	<50	<0.1	12.2	1290	<10	0.2	1790	<20	3
SPX-6	<50	<0.1	11.35	1300	<10	0.2	1210	<20	4.5
SPX-7	<50	<0.1	11.6	1330	<10	0.21	1020	<20	4.1
SPX-8	<50	<0.1	12.35	1410	<10	0.29	840	<20	3

	ME-ICP61a Sb ppm	ME-ICP61a Sc ppm	ME-ICP61a Sr ppm	ME-ICP61a Th ppm	ME-ICP61a Ti %	ME-ICP61a Tl ppm	ME-ICP61a U ppm	ME-ICP61a V ppm	ME-ICP61a W ppm	ME-ICP61a Zn ppm
SPX-1	<50	50	30	<50	0.22	<50	<50	250	<50	90
SPX-2	<50	40	30	<50	0.22	<50	<50	230	<50	100
SPX-3	<50	40	30	<50	0.22	<50	<50	240	<50	110
SPX-4	<50	50	30	<50	0.23	<50	<50	250	<50	100
SPX-5	<50	40	20	<50	0.2	<50	<50	230	<50	100
SPX-6	<50	50	30	<50	0.23	<50	<50	240	<50	90
SPX-7	<50	50	30	<50	0.23	<50	<50	250	<50	90
SPX-8	<50	50	20	<50	0.23	<50	<50	260	<50	90

	PGM-ICP23 Au ppm	PGM-ICP23 Pt ppm	PGM-ICP23 Pd ppm
SPX-1	0.013	<0.005	0.001
SPX-2	0.014	0.01	0.001
SPX-3	0.016	<0.005	<0.001
SPX-4	0.014	<0.005	0.001
SPX-5	0.03	0.038	0.016
SPX-6	0.019	<0.005	0.001
SPX-7	0.012	<0.005	<0.001
SPX-8	0.005	<0.005	<0.001

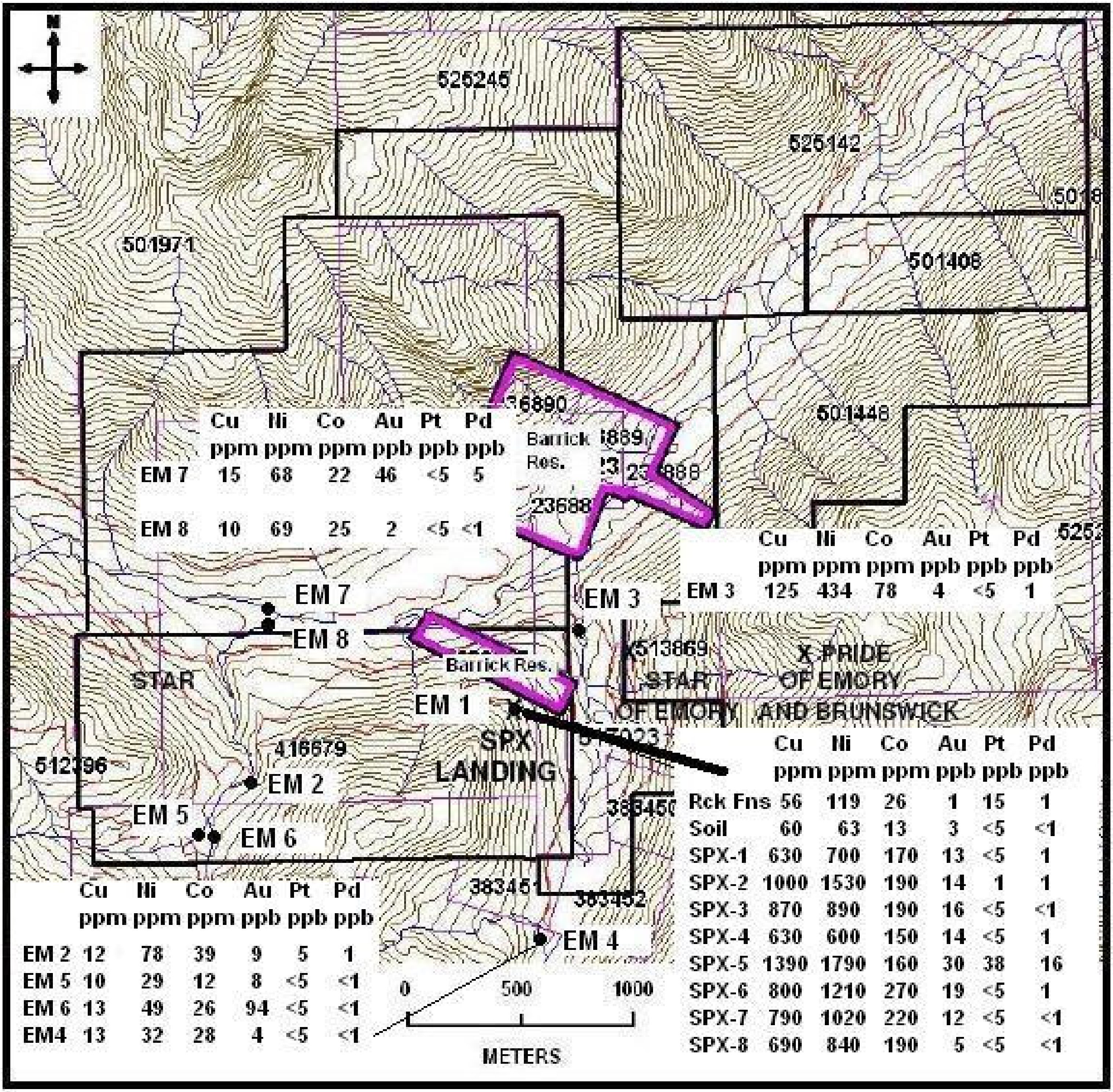


FIGURE 14 LOCATION OF HEAVY MINERAL CONCENTRATE SAMPLES, SOIL, ROCK FINES SAMPLES AND SPX ROCK SAMPLES.
M.McCLAREN, P.Geo., Januray 2007
Contour Interval = 20 meters

DISCUSSION OF RESULTS

Heavy mineral concentrates EM 2 and EM 3 contain elevated contents of chromium, cobalt and nickel. EM 3 also has elevated copper and magnesium. EM 3 is located downstream from the location of the Pride of Emory and Brunswick Glory Hole and the Star of Emory occurrences and the elevated metal contents of this sample most likely reflect these occurrences of nickel-copper mineralization. The elevated metal contents of EM 2 is restricted by the low values obtained from samples EM 5 and EM 6. Sample EM 2 is also located in an area of several Aerotem Z3 off-time electromagnetic anomalies (see Figure 13 and Assessment Report #28020)
The sample of rock fines taken from the SPX landing area returned elevated platinum, chromium and nickel values while the single soil sample taken from this area did not contain any elevated metal values, except for chromium. The 8 mineralized rock samples returned low but interesting values in nickel and copper and in the case of SPX -5, elevated values in the Platinum Group Metals (gold, platinum and palladium).

RESULTS OF THIN SECTION ANALYSIS
(Refer to Appendix 5)

Seven samples were taken from outcrop exposed on the western margin of the SPX Ultramafic Assemblage (SPX-01 to SPX-06 and Sample: 01 - A) with sample # SPX-06 and Sample: 01 - A taken at the contact between pyroxenites and lithology mapped as altered pyroxene diorite. Sample: 06 – B (dunite) was collected at the SPX landing. Mineralized samples include the following: Sample: 01 – A; Sample: 01 – B; Sample: 01 – C; Sample: 04 – A; Sample: 04 – B; and Sample: 04 – C.

The thin section analysis of the samples indicates a sharp contact between the pyroxenites (websterites) and gabbro at the western margin of the SPX Ultramafic Assemblage. Sulphide mineralization begins at the western contact of websterite with gabbro (altered pyroxene diorite). The sulfide mineralization consists of pyrrhotite, chalcopyrite and pentlandite associated with websterite. The websterite can be traced in outcrop for a distance of approximately 30 meters from the contact to the SPX landing area. Samples SPX-01 and 01-A were collected at the contact and samples SPX-05 to SPX-01 were collected at approximately 6 meter intervals towards the SPX landing area.

Magnetite is found up to ~ 1% as black, fine, anhedral to elongated grains and clusters disseminated throughout a serpentine altered dunite (Sample: 06-B). Magnetite may or may not occur (as a very minor constituent) in the websterites. Pyrrhotite is a major constituent of the mineralized websterites and may constitute up to 10% by volume of a mineralized sample (Sample 04 – A).

Retrograde alteration is evident in thin sections of the following samples:
Sample: 04 – C; Sample: 05 – B; Sample: 07 – A; Sample: 07 – B and Sample: 08 – A. Amphibole (actinolite), carbonate (dolomite/ankerite?), talc and chlorite alter the minerals they replace (i.e. original pyroxenes). Ilmenite has been found to be replaced by titanite and pyrrhotite has been found altered to marcasite.

MINERALIZATION

The SPX landing area lies 500 meters southwest of the Star of Emory 3 nickel-copper occurrence (Minfile # 092HSW093). The Star of Emory 3 nickel-copper mineralization was discovered in 1974 during the development of logging roads located downslope and to the west of the Pride of Emory and Brunswick Glory Hole. The original surface samples consisted of high grade nickel mineralization with up to 10% Ni content (Christopher, P., personal communication, 2006). In 1974, 2364 feet (720 meters) of diamond drilling in 15 shallow drill holes was carried out. The diamond drilling of the Star of Emory 3 area intersected massive mineralization which consisted of pyrrhotite, chalcopyrite and pentlandite with minor magnetite and rare chromite. In one hole, mineralization over 2.75 metres yielded 2.2 per cent nickel and 0.58 per cent copper. Another intersection over 0.9 meters yielded 4.69 per cent nickel and 0.28 per cent copper. Host rocks for the mineralization consist primarily of hornblende pyroxenite and hornblendite. In addition minor dunite, minor peridotite, minor pyroxenite, pyroxene hornfels, feldspathic hornblende gabbro and diorite were noted in drill core. Mineralization consisted of disseminated (coarse to fine grained); net-textured (lacy); and massive sulphides (Assessment Report 5385). The Star of Emory 3 occurrence is located within a finger of the Pacific Nickel Complex which is engulfed by hornblende diorites of the Spuzzum Pluton (Vining, M.R., 1977).

An Aerotem Z3 off-time electromagnetic anomaly is located immediately to the east of the creek exposure of the hornblende pyroxenite dike located to the west north west of the SPX area (see Figure 13 and Assessment Report #28020).

The SPX area has mineralized rubble that contains low but interesting copper and nickel values. The mineralization found to date consists of disseminated (Interstitial) and net textured sulfides consisting of pyrrhotite; chalcopyrite and pentlandite in websterite. Magnetite is found up to ~ 1% as fine, anhedral to elongated grains and clusters disseminated throughout a serpentine altered dunite sample (Sample: 06-B). Magnetite may occur as a very minor constituent in the websterites. Pyrrhotite may occur as a major constituent of the mineralized websterites and can constitute up to 10% by volume of a mineralized sample (Sample 04 – A). It is speculated that the W 20 degrees N magnetic signature of the SPX area represents a dunite-peridotite core that is flanked on the west (and possibly to the east) by mineralized pyroxenites (see Figures 8 and 9).

The geological setting of mineralization at the SPX area appears to be similar to that of other orogenic magmatic deposits such as Baimazhai, China (Pirajno, F. et al (2006); Wang, C.Y. and Zhou, M-F (2006) and Zhongli, T. et al (1992)) and Rytky, Central Finland (Makinen, J. and Makkonen, H.V., (2004). At both Baimazhai and Rytky, disseminated mineralization in websterites forms a shell around more concentrated mineralization localized within peridotites. At the former Giant Mascot Mine, concentrically zoned orebodies consisted of interstitial blebs of sulphide in olivine-rich peridotite and dunite in or near the core of sub circular, “pipe-shaped” bodies that are enveloped by more pyroxene-rich peridotite and pyroxenite. In most of these deposits, the sulphide content increases locally to form segregations and drops-off rapidly outwards, as the orthopyroxene content of the rock increases (Pinsent, R.M. 2001). An Aerotem Z3 off-time electromagnetic anomaly appears to be associated with the SPX Ultramafic Assemblage (see Figure 13 and Assessment Report #28020) and is located approximately 200 meters to the northwest of the SPX landing area.

CONCLUSIONS AND RECOMMENDATIONS

The ultramafic assemblage located at the SPX landing area intrudes hypersthene diorite of the Spuzzum Pluton. Geological features noted in other areas of the Spuzzum Pluton indicate that similar ultramafic intrusions are, at least in part, contemporaneous with the emplacement of hornblende diorite of the Spuzzum Pluton (M.McClaren, Private Report, December, 2005). The intrusion of the ultramafic assemblage found at the SPX area has resulted in both thermal and metasomatic changes in the host pyroxene diorite. These changes extend for horizontal distances of up to 800 meters and can be used as a guide to additional areas of mafic-ultramafic intrusions The ultramafic assemblage has been mapped out by a magnetometer survey and this assemblage has a probable surface extent of approximately 80 meters by 35 meters and is a vertical to subvertical body. The magnetometer surveys have partially mapped out a total magnetic intensity response similar to that obtained by the Aeroquest Limited Aerotem II survey carried out in 2005. A circular magnetic feature located on the eastern boundary of the Emory 1 and Emory II mineral tenures outlines mafic-ultramafic lithologies that are sheathed by altered pyroxene diorite and hornblende diorite of the Spuzzum Pluton. A 3 to 5 meter wide W20N/50S trending hornblende pyroxenite dyke, located 500 meters west of the SPX landing area is probably an offshoot of this ultramafic body. At the western contact of the SPX Ultramafic Assemblage, mineralized websterites are in sharp contact with unmineralized gabbro. The websterites are probably developed peripheral to more olivine rich lithologies (dunites; peridotites) which may be represented by the elevated magnetic response at the SPX landing area. The mineralization found in the SPX area may be similar to some other orogenic magmatic nickel deposits found in geological settings where mineralized websterites are peripheral to more concentrated mineralization. It is recommended that either an induced polarization or transient electromagnetic survey be carried out over an area that encompasses the SPX area and the hornblende pyroxenite dike. Two drill holes located at the SPX landing area; one orientated W 20 degrees N and -45 degrees and the other orientated N 45 degrees W and -50 degrees should also be considered. Heavy mineral concentrate sample EM 2 returned elevated metal values in chromium, cobalt and nickel. The source of the elevated metal values is confined to an area south of EM 5 and EM 6. A prominent magnetic feature to the west of EM 2 should be evaluated as well as the area of Aerotem Z3 off-time electromagnetic anomalies located to the east of EM 2. Prospecting, geological mapping and a reconnaissance magnetometer survey of this western area of the property is recommended.

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APPENDIX 1

STATEMENT OF EXPENDITURES

Personnel	
M.McClaren P.Geo.	
21 days @ $450/day	**$9,531.00**
D. Cardinal P.Geo.	
13 days @ $350/day	**$4550.00**
D. Heino	
2 days @ $350/day	**$700.00**
D. Kay	
13 days @ $200/day	**$2600.00**
Road Clearing	
Al Peters & Son	
8 days	**$5708.10**
SUBTOTAL	**$23089.10**
EQUIPMENT RENTAL	
Accomodation	
	$1542.22
Meals	
	$730.43
Truck	
18 days @ $85/day	**$1675.32**
Gas	
	$ 1163.96
Miscellaneous Supplies (Flagging, topofoil, etc.)	**$188.94**
Geophysical Rentals	
	$1717.20
SUBTOTAL	**$7018.07**
Assays	
18 samples @ $35/sample	**$630.00**
Thin Sections	
Vancouver Petrographics	**$284.00**
Petrascience Consultants	**$4743.50**
Frontier Geoscience	**$1431.00**
Report Costs	
Maps and Map reproduction	**$147.50**
Report and map preparation, compilation and research	
M.McClaren P.Geo. 6 days @ $450/day	**$2862.00**
SUBTOTAL	**$10098.00**
TOTAL	**$40,205.17**

APPENDIX 2 GMS-19 V.7.0 INSTRUMENT DESCRIPTION

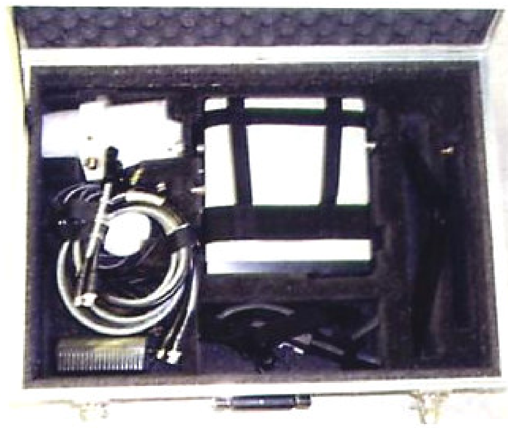


Figure 3: Standard magnetometer components include a sensor, console, radio frequency cable, download cable, shoulder harness, sensor mounting rod, and RS-232 cable. Also included here are a GPS and GPS support rod. For a complete list of parts, consult your packing slip. It may show, for example, that you have an additional sensor and radio frequency cable (i.e. for a gradiometer configuration).

The following list summarizes the STANDARD parts that are shipped with a GSM-19 system:

- 1 sensor for magnetometer and 2 for gradiometer. Sensors are dual-coils designed to reduce noise and improve gradient tolerance. Coils are electrostatically shielded and contain a special proton rich liquid in a sealed Pyrex bottle Radio Frequency (RF) resonator. The liquid does not need to be refilled.
- 1 coaxial sensor cable per channel, typically RG-58/U and 206 cm long. (Up to 100m long cable is available optionally. Over 20m, we recommend a triaxial cable - Belden 9222).
- Fast reading magnetometers have two sensor cables – one for RF polarization and a microphone cable for the signal.
- Console with all electronic circuits. It has 16 key keyboard, graphic display (64 x 240 pixel, or 8 x 30 characters), sensor and power / input / output connectors. The keyboard also serves as an ON-OFF switch.
- 6-pin console connector for RS-232, external power, battery charging or external trigger. Optional dual analog output is available on a 3-pin connector.
- Sealed connectors (i.e. keyboard and front panel mounting screws are sealed so that the instrument can operate under rainy conditions).
- Charger with 2 levels of charging (full and trickle) that switch automatically from one to another. Input is 110 - 250V, 50 / 60 Hz.
- All-metal console housing for excellent electromagnetic interference (EMI) protection.

- Aluminum staff with 4 strong tubing sections (plastic staff optional). This construction allows for a selection of sensor elevations above ground during surveys. For best precision the full staff length should be used. Recommended sensor separation in gradiometer mode is one staff section (56cm), although two or more sections are sometimes used for maximum sensitivity.

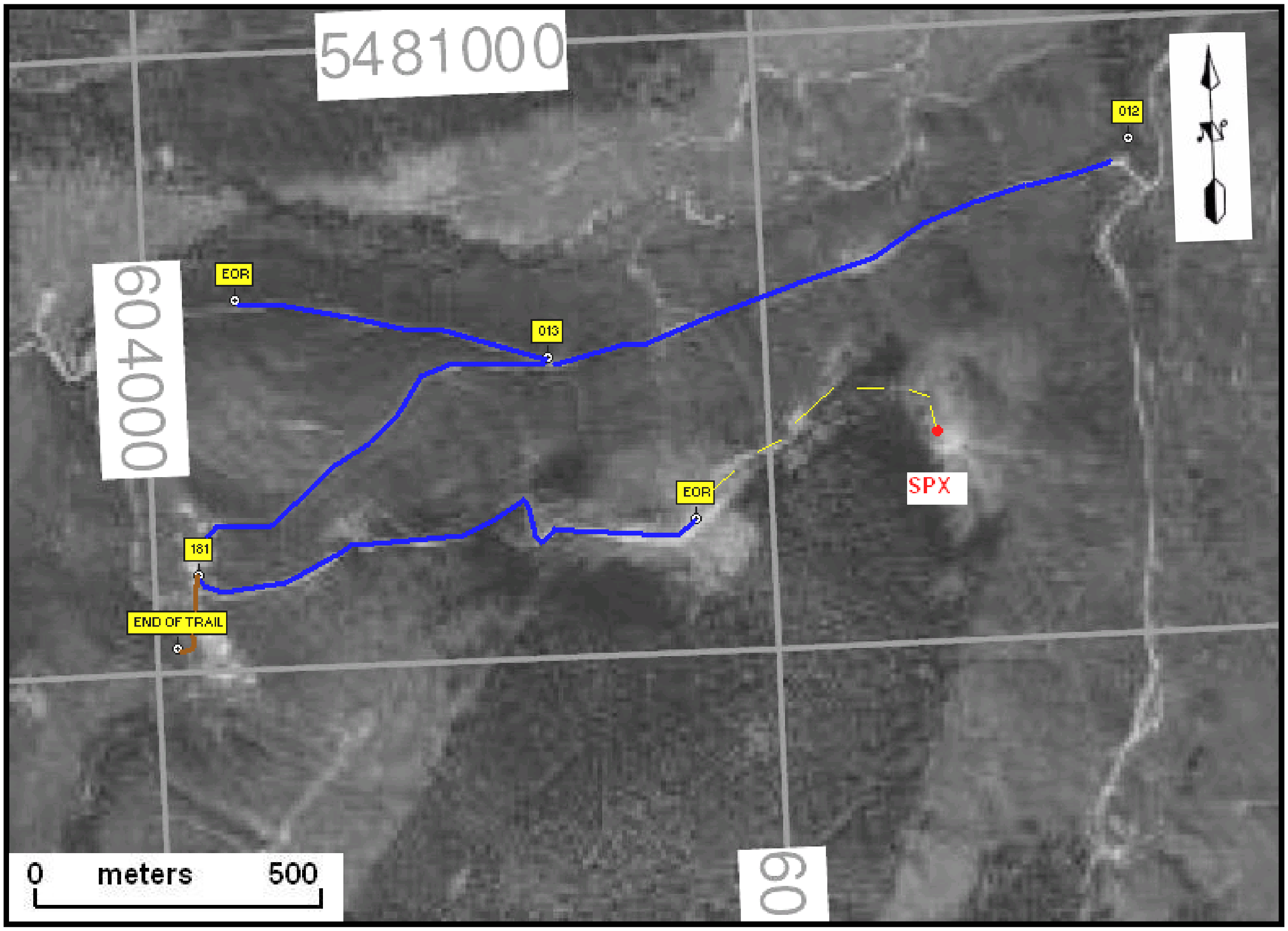
4.2 ASSEMBLING THE INSTRUMENT

The GSM-19 is very simple to assemble. The following picture shows the sensors in Gradiometer or Walkgrad configuration mounted on a back pack

Figure 4: Gradiometer and Backpack Assembly

APPENDIX 3

**LOCATION OF REHABILITATED ROAD AND TRAIL CONSTRUCTION
EMORY CREEK PROJECT**



Blue = Rehabilitated Road
Yellow (Dashed) = Road not rehabilitated
Brown = Constructed Trail

APPENDIX 4
ANALYTICAL RESULTS

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ALS Canada Ltd.
212 Brooksbank Avenue
North Vancouver BC V7J 2C1
Phone: 604 984 0221 Fax: 604 984 0218 www.alschemex.com

To: **CROCKITE RESOURCES LTD.**
283 WOODALE RD
NORTH VANCOUVER BC V7N 1S6

Page: 2 - A
Total # Pages: 2 (A - C)
Finalized Date: 11-DEC-2006
Account: JUU

Project: EMORY CR

CERTIFICATE OF ANALYSIS VA06117033

Sample Description	Method / Analyte / Units / LOR	WEI-21 Recvd Wt. kg 0.02	PGM-ICP23 Au ppm 0.001	PGM-ICP23 Pt ppm 0.005	PGM-ICP23 Pd ppm 0.001	ME-ICP61 Ag ppm 0.5	ME-ICP61 Al % 0.01	ME-ICP61 As ppm 5	ME-ICP61 Ba ppm 10	ME-ICP61 Be ppm 0.5	ME-ICP61 Bi ppm 2	ME-ICP61 Ca % 0.01	ME-ICP61 Cd ppm 0.5	ME-ICP61 Co ppm 1	ME-ICP61 Cr ppm 1	ME-ICP61 Cu ppm 1
EM 1 ROCK		1.86	0.001	0.015	0.001	<0.5	8.22	17	310	0.8	<2	3.06	<0.5	26	362	56

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Total # Pages: 2 (A - C)
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Account: JUU

Project: EMORY CR

CERTIFICATE OF ANALYSIS VA06117033

Sample Description	Method / Analyte / Units / LOR	ME-ICP61 Fe % 0.01	ME-ICP61 Ga ppm 10	ME-ICP61 K % 0.01	ME-ICP61 La ppm 10	ME-ICP61 Mg % 0.01	ME-ICP61 Mn ppm 5	ME-ICP61 Mo ppm 1	ME-ICP61 Na % 0.01	ME-ICP61 Ni ppm 1	ME-ICP61 P ppm 10	ME-ICP61 Pb ppm 2	ME-ICP61 S % 0.01	ME-ICP61 Sb ppm 5	ME-ICP61 Sc ppm 1	ME-ICP61 Sr ppm 1
EM 1 ROCK		5.15	20	0.58	10	3.90	923	1	2.02	119	680	7	0.04	8	21	441

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Total # Pages: 2 (A - C)
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Account: JUU

Project: EMORY CR.

CERTIFICATE OF ANALYSIS VA06117032

Sample Description	Method / Analyte / Units / LOR	WEI-21 Recvd Wt. kg 0.02	PGM-ICP23 Au ppm 0.001	PGM-ICP23 Pt ppm 0.005	PGM-ICP23 Pd ppm 0.001	ME-ICP61 Ag ppm 0.5	ME-ICP61 Al % 0.01	ME-ICP61 As ppm 5	ME-ICP61 Ba ppm 10	ME-ICP61 Be ppm 0.5	ME-ICP61 Bi ppm 2	ME-ICP61 Ca % 0.01	ME-ICP61 Cd ppm 0.5	ME-ICP61 Co ppm 1	ME-ICP61 Cr ppm 1	ME-ICP61 Cu ppm 1
EM 1 SOIL		0.42	0.003	<0.005	<0.001	<0.5	7.60	13	240	0.9	<2	1.66	<0.5	13	243	60

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Page: 2 - B
Total # Pages: 2 (A - C)
Finalized Date: 9-DEC-2006
Account: JUU

CERTIFICATE OF ANALYSIS VA06117032

Sample Description	Method Analyte Units LOR	ME-ICP61 Fe % 0.01	ME-ICP61 Ga ppm 10	ME-ICP61 K % 0.01	ME-ICP61 La ppm 10	ME-ICP61 Mg % 0.01	ME-ICP61 Mn ppm 5	ME-ICP61 Mo ppm 1	ME-ICP61 Na % 0.01	ME-ICP61 Ni ppm 1	ME-ICP61 P ppm 10	ME-ICP61 Pb ppm 2	ME-ICP61 S % 0.01	ME-ICP61 Sb ppm 5	ME-ICP61 Sc ppm 1	ME-ICP61 Sr ppm 1
EM 1 SOIL		4.53	20	0.47	10	1.69	438	<1	1.50	63	730	12	0.03	<5	14	281

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Total # Pages: 2 (A - C)
Finalized Date: 10-DEC-2006
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Project: EMORY CR

CERTIFICATE OF ANALYSIS VA06117034

Sample Description	WEI-21	PGM-ICP23	PGM-ICP23	PGM-ICP23	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61
Analyte	Recvd Wt.	Au	Pt	Pd	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu
Units	kg	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
LOR	0.02	0.001	0.005	0.001	0.5	0.01	5	10	0.5	2	0.01	0.5	1	1	1
EM 2	0.18	0.009	0.005	0.001	<0.5	7.31	6	60	<0.5	<2	3.30	<0.5	39	1030	16
EM 3	0.28	0.003	<0.005	0.001	<0.5	4.42	<5	40	<0.5	4	1.84	<0.5	78	1170	125
EM 4	0.20	0.004	<0.005	<0.001	<0.5	6.88	<5	110	0.7	<2	3.34	<0.5	28	257	13
EM 5	0.20	0.008	<0.005	<0.001	<0.5	8.14	5	150	0.5	<2	2.58	1.4	12	256	10
EM 6	0.20	0.094	<0.005	<0.001	<0.5	7.42	5	140	0.5	<2	3.06	0.8	26	360	13
EM 7	0.24	0.046	<0.005	0.005	<0.5	7.80	5	170	0.5	<2	3.92	<0.5	22	1110	15
EM 8	0.20	0.002	<0.005	<0.001	<0.5	7.93	<5	150	0.5	<2	3.71	<0.5	25	343	10

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Project: EMORY CR

CERTIFICATE OF ANALYSIS VA06117034

Sample Description	Method / Analyte / Units / LOR	ME-ICP61 Fe % 0.01	ME-ICP61 Ga ppm 10	ME-ICP61 K % 0.01	ME-ICP61 La ppm 10	ME-ICP61 Mg % 0.01	ME-ICP61 Mn ppm 5	ME-ICP61 Mo ppm 1	ME-ICP61 Na % 0.01	ME-ICP61 Ni ppm 1	ME-ICP61 P ppm 10	ME-ICP61 Pb ppm 2	ME-ICP61 S % 0.01	ME-ICP61 Sb ppm 5	ME-ICP61 Sc ppm 1	ME-ICP61 Sr ppm 1
EM 2		17.00	<10	0.11	10	4.89	7670	<1	0.62	78	320	<2	0.12	12	95	131
EM 3		11.90	<10	0.08	<10	13.65	4340	<1	0.43	434	180	<2	0.04	5	49	77
EM 4		13.60	10	0.17	<10	3.78	4450	<1	1.12	32	1210	<2	0.01	17	59	288
EM 5		10.55	10	0.24	10	1.67	6350	<1	1.08	29	380	2	0.03	10	81	188
EM 6		11.25	10	0.24	10	3.47	4830	<1	1.15	49	460	<2	0.01	8	68	229
EM 7		7.77	10	0.29	10	2.63	3560	<1	1.66	68	410	3	0.01	<5	50	233
EM 8		9.99	20	0.23	10	3.69	4770	<1	1.32	69	310	5	0.01	5	66	271

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Total # Pages: 2 (A - C)
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Project: SPX

CERTIFICATE OF ANALYSIS VA06124296

Sample Description	Method	WEI-21	ME-ICP61a	ME-ICP61a	ME-ICP61a	ME-ICP61a	ME-ICP61a	ME-ICP61a	ME-ICP61a	ME-ICP61a	ME-ICP61a	ME-ICP61a	ME-ICP61a	ME-ICP61a	ME-ICP61a	ME-ICP61a
	Analyte	Recvd Wt.	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	K
	Units	kg	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	%
	LOR	0.02	1	0.05	50	50	10	20	0.05	10	10	10	10	0.05	50	0.1
SPX-1		0.22	<1	1.76	<50	<50	<10	<20	6.70	<10	170	600	630	10.85	<50	<0.1
SPX-2		0.38	<1	1.59	<50	<50	<10	<20	7.09	<10	190	550	1000	11.40	<50	<0.1
SPX-3		1.48	<1	1.64	<50	<50	<10	<20	6.79	<10	190	720	870	11.45	<50	<0.1
SPX-4		0.30	<1	1.78	<50	<50	<10	<20	6.67	<10	150	760	630	11.20	<50	<0.1
SPX-5		0.40	<1	1.47	<50	<50	<10	<20	6.15	<10	160	750	1390	11.50	<50	<0.1
SPX-6		0.16	<1	1.60	<50	<50	<10	<20	7.26	<10	270	580	800	13.30	<50	<0.1
SPX-7		0.18	1	1.62	<50	<50	<10	<20	7.53	<10	220	570	790	12.10	<50	<0.1
SPX-8		1.00	<1	1.55	<50	<50	<10	<20	7.65	<10	190	810	690	11.00	<50	<0.1

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Project: SPX

CERTIFICATE OF ANALYSIS VA06124296

Sample Description	Method / Analyte / Units / LOR	ME-ICP61a Mg % 0.05	ME-ICP61a Mn ppm 10	ME-ICP61a Mo ppm 10	ME-ICP61a Na % 0.05	ME-ICP61a Ni ppm 10	ME-ICP61a Pb ppm 20	ME-ICP61a S % 0.1	ME-ICP61a Sb ppm 50	ME-ICP61a Sc ppm 10	ME-ICP61a Sr ppm 10	ME-ICP61a Th ppm 50	ME-ICP61a Ti % 0.05	ME-ICP61a Tl ppm 50	ME-ICP61a U ppm 50	ME-ICP61a V ppm 10
SPX-1		12.20	1460	<10	0.26	700	<20	2.6	<50	50	30	<50	0.22	<50	<50	250
SPX-2		11.25	1440	<10	0.26	1530	<20	2.9	<50	40	30	<50	0.22	<50	<50	230
SPX-3		12.35	1410	<10	0.22	890	<20	3.0	<50	40	30	<50	0.22	<50	<50	240
SPX-4		13.05	1560	<10	0.23	600	20	2.2	<50	50	30	<50	0.23	<50	<50	250
SPX-5		12.20	1290	<10	0.20	1790	<20	3.0	<50	40	20	<50	0.20	<50	<50	230
SPX-6		11.35	1300	<10	0.20	1210	<20	4.5	<50	50	30	<50	0.23	<50	<50	240
SPX-7		11.60	1330	<10	0.21	1020	<20	4.1	<50	50	30	<50	0.23	<50	<50	250
SPX-8		12.35	1410	<10	0.29	840	<20	3.0	<50	50	20	<50	0.23	<50	<50	260

APPENDIX 5
THIN AND POLISHED SECTION DESCRIPTIONS
SPX- 3 Vancouver Petrographics

PERIDOTITE (PYROXENITE, i.e. WEBSTERITE: ORTHO- AND CLINOPYROXENE, ACCESSORY AMPHIBOLE, PYRRHOTITE/TRACE CHALCOPYRITE), MINOR TREMOLITE-CARBONATE ALTERATION

Hand specimen shows a fine-grained, massive, homogeneous-looking, dark grey-brown to black, mafic to ultramafic rock (?) with abundant finely disseminated sulfide, likely mostly pyrrhotite. The rock is magnetic and coated with limonite, but shows no reaction to cold dilute HCl, and no stain for K-feldspar in the etched offcut. Modal mineralogy in polished thin section is approximately:

Clinopyroxene (augite?)	45%
Orthopyroxene (enstatite and hypersthene?)	45%
Amphibole (late-magmatic hornblende?)	3-5%
Pyrrhotite	3-5%
Amphibole (secondary, tremolite-actinolite?)	1-2%
Carbonate (dolomite/ankerite?)	<1%
Chalcopyrite	<<1%
Pentlandite (?)	trace

This sample consists mainly of subhedral crystals of clinopyroxene and orthopyroxene set in a matrix of finer-grained, anhedral pyroxene, minor amphibole and sulfides.

The larger clinopyroxene and orthopyroxene "phenocrysts" form sub- to locally euhedral crystals up to about 5 mm long, generally with random orientations. Orthopyroxene crystals appear to be either 1) colourless, with positive optic sign, and contain small or elongate oriented inclusions of clinopyroxene in parallel position (enstatite?), or 2) show faint but distinct pale pinkish to greenish pleochroism typical of hypersthene, and are locally strongly fractured in the cores. Clinopyroxene crystals are very pale green but non-pleochroic, with large extinction angle near 40-45 degrees; they may be augite (?), and commonly contain oriented elongate inclusions of orthopyroxene (?). Alteration at margins or locally cores to fibrous colourless amphibole (tremolite-actinolite?) as subhedra mostly <0.5 mm long locally mixed with carbonate as irregular anhedra to 0.3 mm, or replacement by pale brown amphibole, likely late-magmatic hornblende (?) forming ragged sub- to anhedral crystals mostly <0.7 mm long, is mostly typical of orthopyroxene.

In the matrix, smaller pyroxene crystals (both ortho- and clino-) are mostly rounded, sub- to anhedral, and <0.6 mm in diameter. The pyroxene crystals are locally mixed with a little of the pale brown late-magmatic amphibole as ragged irregular subhedra also to 0.5 mm long, and sulfides (mainly pyrrhotite). Matrix pyroxene is also partly affected by the tremolite?-carbonate alteration.

Pyrrhotite occurs as bleb-like aggregates or subhedral crystals mostly <0.5 mm in size (local aggregates to 1 mm). Chalcopyrite occurs as rounded bleb-like, elongate flame-like, or subhedral crystals rarely over 0.12 mm in size, included within pyrrhotite or localized along grain boundaries. Traces of pentlandite (?) forming flame-like inclusions mostly <40 microns long are also locally found within the pyrrhotite.

In summary, this appears to be an ultramafic rock (peridotite), specifically a pyroxenite (websterite, made up of roughly equal quantities of orthopyroxene and clinopyroxene), with minor amphibole (brown, late-magmatic hornblende?) and accessory pyrrhotite (containing minor inclusions of chalcopyrite and traces of pentlandite?), and slight alteration to amphibole (tremolite?) and carbonate.

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Phone: 604.684.5857 fax: 604.222.4642
info@petrascience.com
www.petrascience.com

Sample: 06 - B

LITHOLOGY: ?Dunite
ALTERATION TYPE: Serpentine

Hand Sample Description:
Layered sample alternating subparallel black mafic bands, fine to very fine-grained and brownish, fibrous-looking (?oxidized) bands. Contains fine, subhedral, black magnetite (~ 1%). No reaction with dilute HCl, no stain with sodium cobaltinitrite (no K-feldspar).

Thin Section Description:
The sample is an altered dunite, consisting almost entirely of olivine and serpentine with fine fractured grains of olivine preserved in a mesh-like groundmass of serpentine. Elongated grains of orthopyroxene occur throughout, variously altered by talc.
Rare magnetite and pyrite are disseminated, ?magnetite commonly rimming pyrite, and trace of very fine-grained spinel was also observed.
Fe-oxides / hydroxides heterogeneously stain the sample defining the banding observed in hand sample.

MAJOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Serpentine	60	Extremely fine-grained groundmass forming a mesh-like texture around fractured olivine grains	
Olivine	30	Fine broken and fractured grains occurring in a groundmass of serpentine	

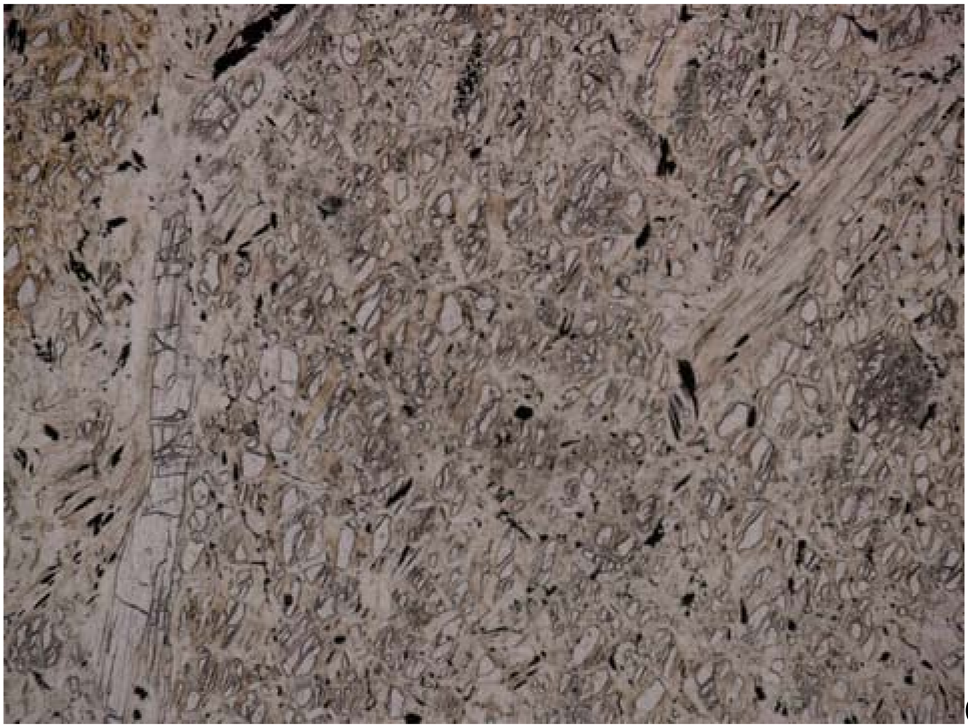
MINOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Talc	02	Fine anhedral and foliated masses,	
Orthopyroxene	02	Fine, strongly elongated grains, variously replaced by talc	
Magnetite	02	Fine to very fine anhedral to elongated grains and clusters locally enclosing pyrite	
Fe-oxides / hydroxides	01	Stain throughout, variously developed in layers	
?Spinel	tr	Very fined-grained brownish clusters *Isotropic, non-reflective*	
Pyrite	tr	Fine to very fine anhedral grains, commonly with a thin ?magnetite rim or enclosed within magnetite	


A


B

06 - B: A & B) Overview of the sample, showing two NS bands. Both are dominated by olivine and serpentine, and the color difference observed in hand sample appears mainly due to a change in oxide content.
A) PPL, B) XPL, FOV = ~ 8.5 mm.



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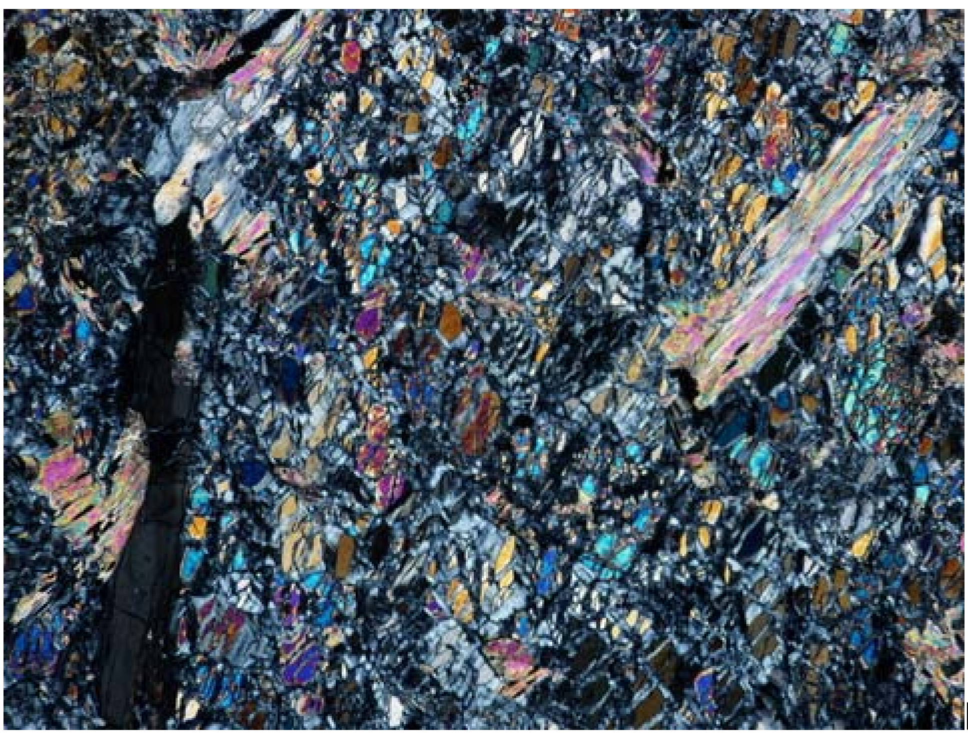


D

06 - B: C & D) Detailed view showing very fine olivine preserved in foliated serpentine. Elongated grains of possible orthopyroxene occur, variously replaced by foliated masses of talc (high birefringence colors).
A) PPL, B) XPL, FOV = ~ 3.5 mm.

Sample: SPX - 01

LITHOLOGY: Websterite
ALTERATION TYPE: Weak chlorite, carbonate, sericite
Hand Sample Description:
Fine to medium-grained, dark, granular mafic rock with trace disseminated sulfides. Displays two subparallel bands approx. 1 cm wide, made of a dark brown mafic phase. Not magnetic, no stain with sodium cobaltinitrite, no reaction with dilute HCl.

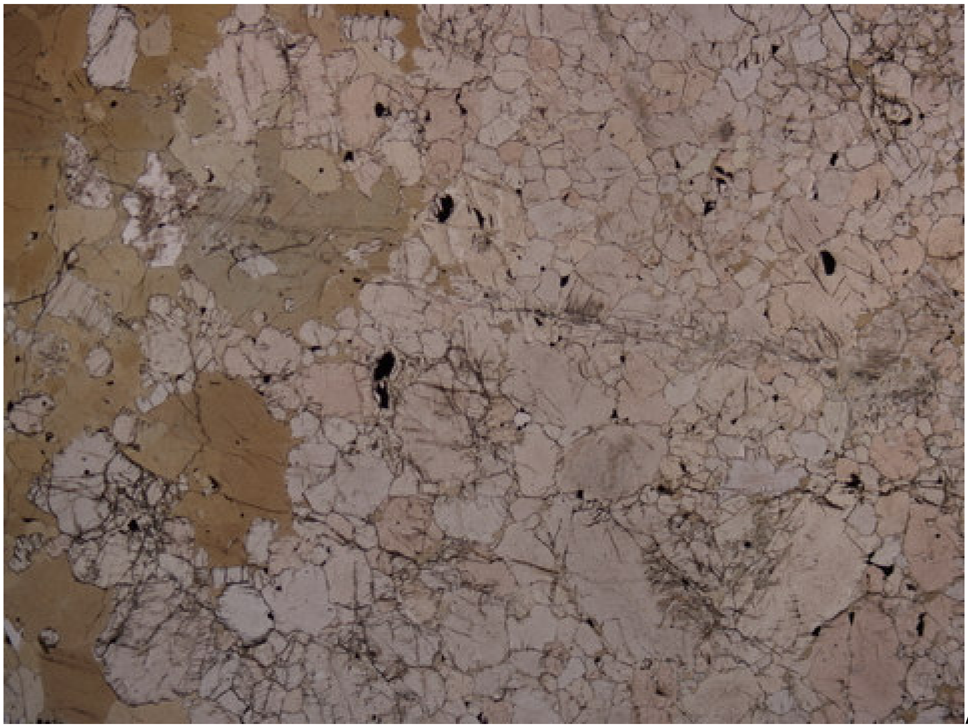
Thin Section Description:
The sample is a medium-grained websterite, consisting of a granular assemblage of orthopyroxene and lesser clinopyroxene. Fine interstitial hornblende is common and interstitial plagioclase occurs sporadically. Hornblende also forms overgrowth in clinopyroxene and occurs coarser-grained in two subparrallel bands enclosing pyroxenes.
Alteration is weak, limited to the development of very fine chlorite and / or carbonate in the cores of clinopyroxene and to the development of sericite ± carbonate within plagioclase.
Pyrrhotite is disseminated, locally commonly including masses and lamellae of pentlandite and chalcopyrite. Trace magnetite also occurs.

MAJOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Orthopyroxene	45	Fine- to medium-grained, subrounded to tabular. Forms a granular groundmass with disseminated clinopyroxene and interstitial hornblende	*Pinkish pleochroism, low δ colors, lamellar structure*
?Hornblende	30	Medium-sized, anhedral masses, commonly poikilitically enclosing grains of ortho- and clinopyroxene. Occurs in two subparallel bands. Also as fine interstitial masses	*Brownish, pleochroic*
Clinopyroxene	20	Fine- to medium-sized anhedral grains and masses, commonly zoned and with bleb-like intergrowth of hornblende. Rarely altered by very fine patches of chlorite or of carbonate	*Colorless*

MINOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Pyrrhotite	02	Fine anhedral to subrounded masses disseminated, associated with chalcopyrite and pentlandite	
Muscovite (sericite)	tr	Very fine-grained clusters, likely after plagioclase	
Plagioclase	tr	Rare fine, interstitial grains, pitted by sericite and carbonate	
Carbonate	tr	Very fine masses developed in clinopyroxene along cracks and grain boundaries	
Pentlandite	tr	Very fine masses and lamellae within pyrrhotite	
Chalcopyrite	tr	Very fine masses and lamellae within pyrrhotite	
?Ilmenite	tr	Very fine anhedral to elongated grains disseminated	*?anisotropic*
?Chlorite	tr	Selective patchy alteration of clinopyroxene cores	



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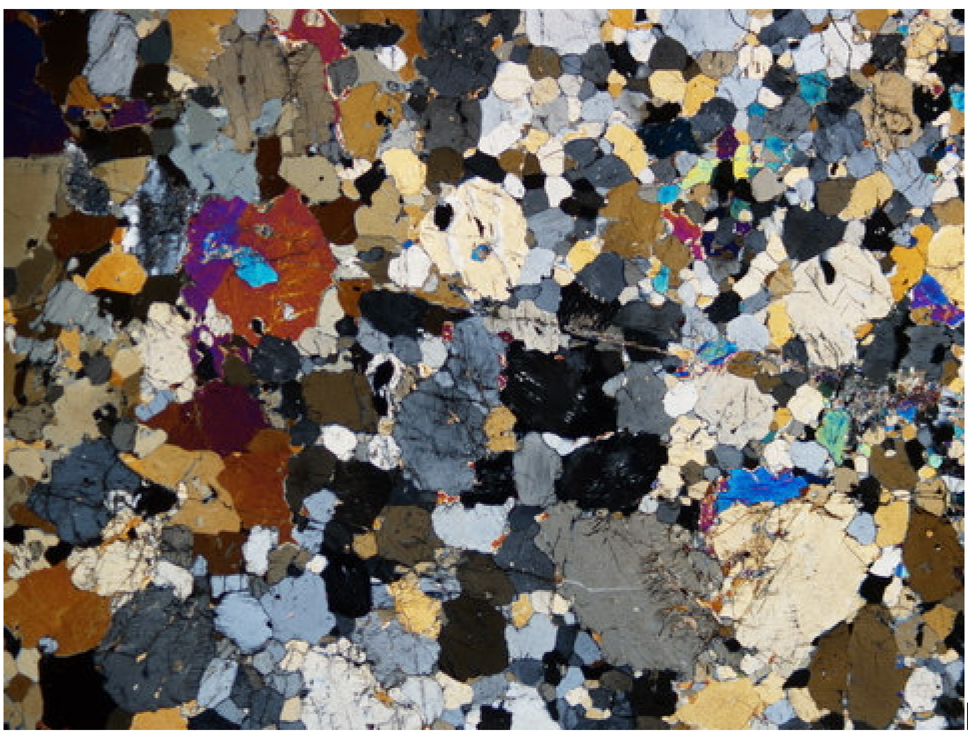


B

SPX - 01: A & B) Representative view of the sample showing the fine- to medium- grained assemblage of ortho- and clinopyroxene, cut by a band of hornblende on the left side of the photograph.
A) PPL, B) XPL, FOV = ~ 8.5 mm.

Sample: SPX - 02

LITHOLOGY: Websterite
ALTERATION TYPE: Weak sericite, carbonate

Hand Sample Description:
Coarser-grained than the previous sample, dark, equigranular and homogeneous mafic rock with trace disseminated sulfides. Not magnetic, no stain with sodium cobaltinitrite, no reaction with dilute HCl.

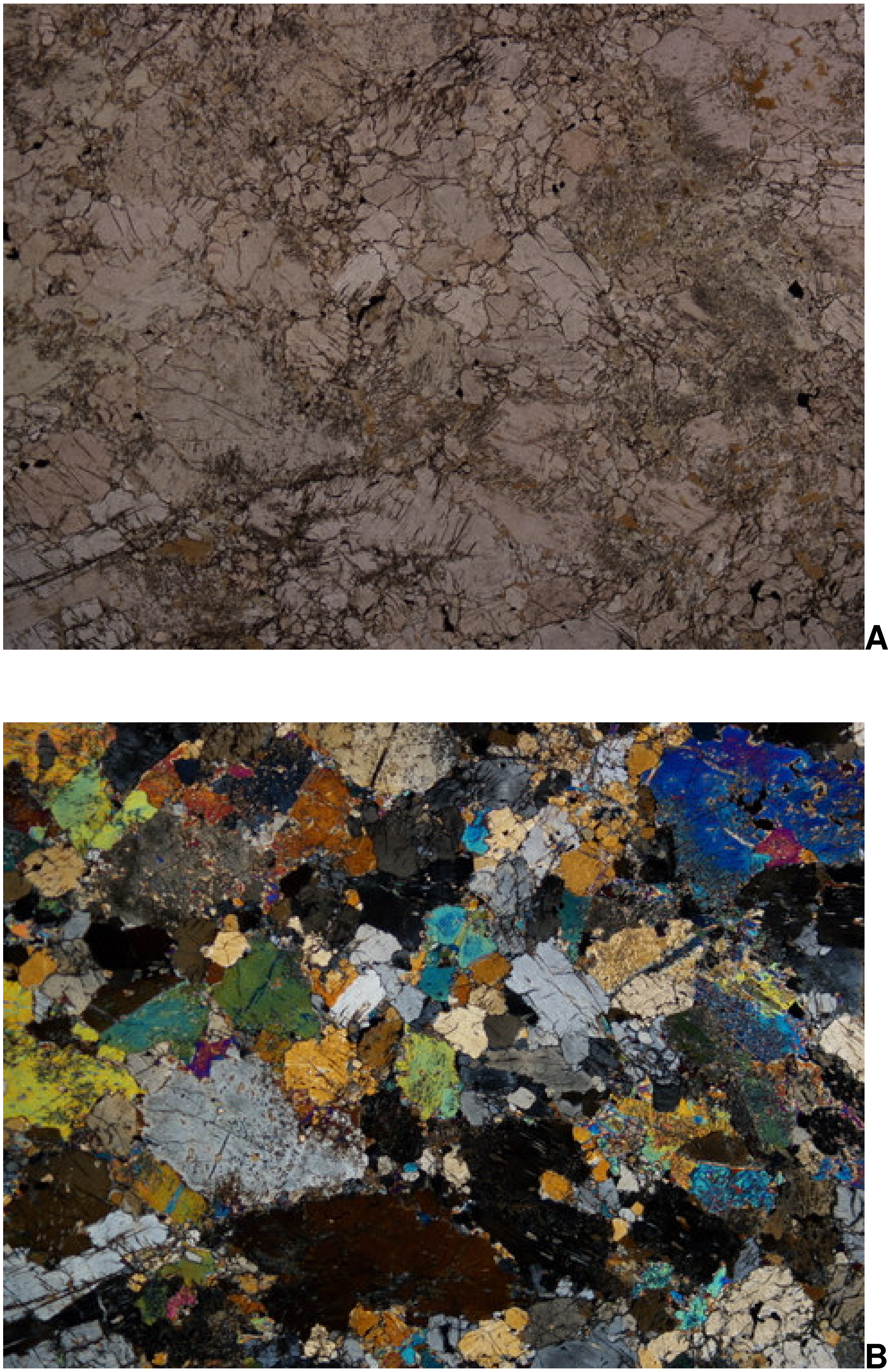
Thin Section Description:
This websterite is primarily composed of clinopyroxene and lesser orthopyroxene, both occurring with a slightly coarser grain size and a more corroded aspect than in the previous sample.
Interstitial phlogopite occurs between pyroxenes and intergrowth of pyroxene and phlogopite within pyroxene are more common than in the previous sample. Muscovite and carbonate occurs sporadically as alteration of interstitial minerals and pyroxenes.
Interstitial pyrrhotite locally line pyroxene boundaries, with pentlandite and chalcopyrite at the margins or as laths within pyrrhotite.

MAJOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Clinopyroxene	50	Fine- to medium-sized anhedral grains, commonly zoned, with bleb-like intergrowth of phlogopite or lamellar intergrowth of orthopyroxene. Locally altered along grain boundaries and lamellae by very fine carbonate and sericite	*Colorless*
Orthopyroxene	40	Fine- to medium-grained, anhedral, lamellar, with bleb-like intergrowth of phlogopite and clinopyroxene or with lamellar intergrowth of orthopyroxene. Locally altered by very fine carbonate and sericite	*Pinkish pleochroism, low δ colors,*
?Phlogopite	05	Fine interstitial masses and bleb-like intergrowth in pyroxenes	*Brownish, pleochroic*

MINOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Pyrrhotite	01	Fine interstitial anhedral grains, associated with chalcopyrite and pentlandite	
Carbonate	01	Very fine masses developed in pyroxenes, along cracks and grain boundaries	
Muscovite (sericite)	01	Fine sheaves and masses, occurring with carbonate	
Pentlandite	tr	Very fine masses and lamellae within pyrrhotite	
Chalcopyrite	tr	Very fine masses and lamellae within pyrrhotite	
Ilmenite	tr	Very fine anhedral grains throughout	*Anisotropic*



SPX - 02: A & B) Representative view of the sample showing a corroded assemblage of ortho- and clinopyroxene with fine disseminated masses of brown phlogopite..
A) PPL, B) XPL, FOV = ~ 8.5 mm.

Sample: SPX - 03

LITHOLOGY: Websterite
ALTERATION TYPE: Weak carbonate

Hand Sample Description:
Medium-grained, grayish, ?mafic rock with trace disseminated sulfides. Not magnetic, no stain with sodium cobaltinitrite, no reaction with dilute HCl.

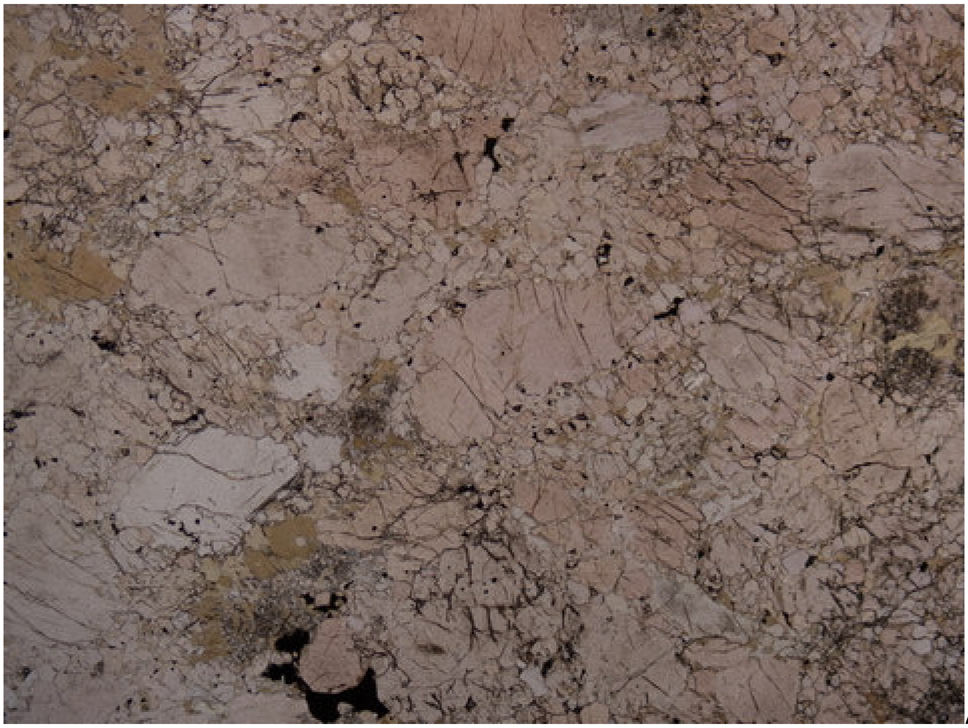
Thin Section Description:
This websterite is characterized by a nearly bimodal grain size, with ortho- and clinopyroxene occurring medium-grained or as fine-grained aggregates that probably are the product of deformation-induced grain-size reduction as suggested by undulous extinction, bent lamellae and irregular grain boundaries in the coarser-grained pyroxene fraction. Phlogopite occurs interstitial and as blebs within pyroxenes. Alteration is limited to thin veinlets of carbonate sporadically occurring in and around pyroxenes. Fine anhedral pyrrhotite is disseminated containing masses and bands of chalcopyrite and pentlandite. Trace possible ilmenite was also observed.

MAJOR MINERALS

Mineral	**%**	**Distribution & Characteristics**	**Optical**
Orthopyroxene	45	1) Medium-grained, anhedral to tabular, lamellar, commonly bent, with blebs of phlogopite, lamellae of clinopyroxene and irregular grain boundaries 2) Fine-grained, platy, as mantle around coarser grains and larger clusters between grains	*Pinkish pleochroism low δ colors,*
Clinopyroxene	40	1) Medium-grained, anhedral to tabular, lamellar, with blebs of phlogopite, lamellae of orthopyroxene and irregular grain boundaries 2) Fine-grained, platy, as mantle around coarser grains and larger clusters between grains	*Oblique extinction*
?Phlogopite	07	Fine interstitial masses and blebs within pyroxenes	*Brownish, pleochroic*

MINOR MINERALS

Mineral	**%**	**Distribution & Characteristics**	**Optical**
Pyrrhotite	02	Fine interstitial anhedral grains, associated with chalcopyrite and pentlandite	
Pentlandite	tr-01	Very fine masses and lamellae within pyrrhotite	
Chalcopyrite	tr-01	Very fine masses and lamellae within pyrrhotite	
Carbonate	tr	Very fine-grained, developed along cracks and grain boundaries in pyroxenes,	
?Ilmenite	tr	Very fine anhedral grains throughout	*Anisotropic*



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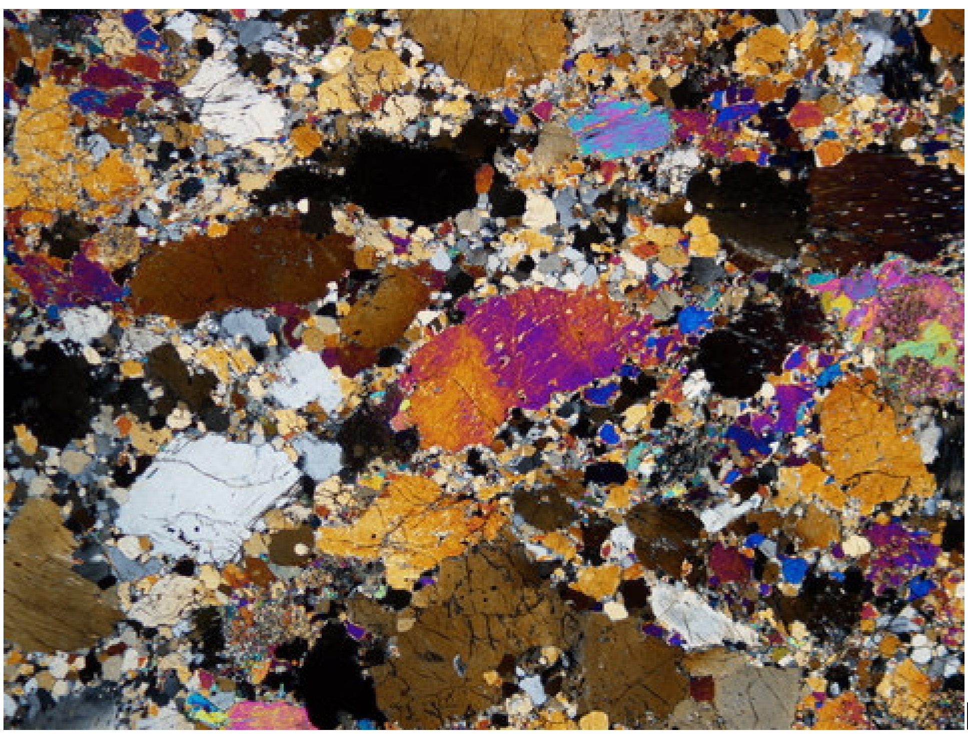


B

SPX – 03: A & B) Representative view of the sample showing bimodal grain size of the ortho- and clinopyroxene assemblage with interstitial masses of phlogopite. Note the concentration of smaller grains around the bigger grains forming *core-and-mantles* textures.
A) PPL, B) XPL, FOV = ~ 8.5 mm.

Sample: SPX - 04

LITHOLOGY: ?Hornblende websterite
ALTERATION TYPE: Talc, serpentine, ?hornblende, actinolite, carbonate, chlorite
Hand Sample Description:
Similar to the previous sample, coarser-grained, with trace fine sulfides and cut by very thin oxidized fractures. Magnetic, no reaction with dilute HCl, no stain with sodium cobaltinitrite.

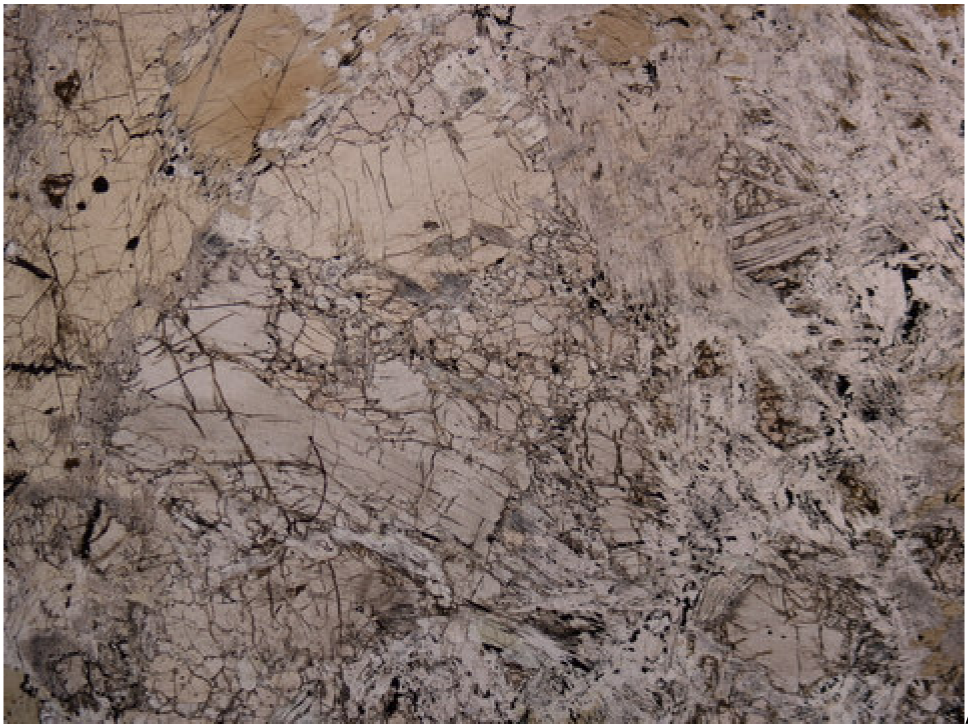
Thin Section Description:
The sample is an altered websterite, characterized by the presence of fine to medium-size, likely primary, brown amphibole (hornblende). Clinopyroxene and orthopyroxene still dominate the sample but are only partially preserved from alteration that includes replacement by secondary brown amphibole and development of patches of serpentine. Masses of foliated actinolite and talc occur, sporadically associated with carbonate or chlorite, typically completely altering the minerals they replace (?original pyroxenes) Very fine magnetite occurs interstitial to pyroxene and in thin veinlets, locally associated with Fe-oxides / hydroxides that on rare occasions also rim disseminated pyrrhotite. Inclusions of chalcopyrite and pentlandite occur within pyrrhotite.

MAJOR MINERALS

Mineral	**%**	**Distribution & Characteristics**	**Optical**
Clinopyroxene	35	Fine to medium-grained, anhedral, partly preserved. Contains blebs of brown amphibole, patches and cracks of serpentine	
Brown amphibole ?hornblende	25	Fine to medium-size masses disseminated and as blebs in pyroxenes. Also as medium-sized subhedral ?primary grains	*124º cleavage intersection*
Orthopyroxene	20	Fine- to medium-sized lamellar grains. Commonly with blebs of brown amphibole, patches and cracks of serpentine	*Straight extinction*
?Muscovite / talc	10	Fine foliated grains variously associated with magnetite, actinolite and carbonate	

MINOR MINERALS

Mineral	**%**	**Distribution & Characteristics**	**Optical**
Actinolite / uralite	02	Fine slender sheaves and fan-like masses occurring within pyroxenes likely replacing it	*Green pleochroism*
Serpentine	02	Very fine-grained, as masses and crack infill in and around pyroxenes	
Pyrrhotite	01	Fine anhedral grains disseminated associated with chalcopyrite and pentlandite	
Magnetite	01	Very fine anhedral to elongated grains interstitial and in thin veinlets. Also within masses of foliated alteration minerals	*Isotropic*
Carbonate	tr	Clusters of fine anhedral grains, commonly intermixed with talc, actinolite and magnetite	
Pentlandite	tr	Very fine masses and lamellae within pyrrhotite	
Chalcopyrite	tr	Very fine masses and lamellae within pyrrhotite	
Chlorite	tr	Fine anhedral masses	
Fe-oxides / hydroxides	tr	Very fine masses with magnetite and rims around pyrrhotite	



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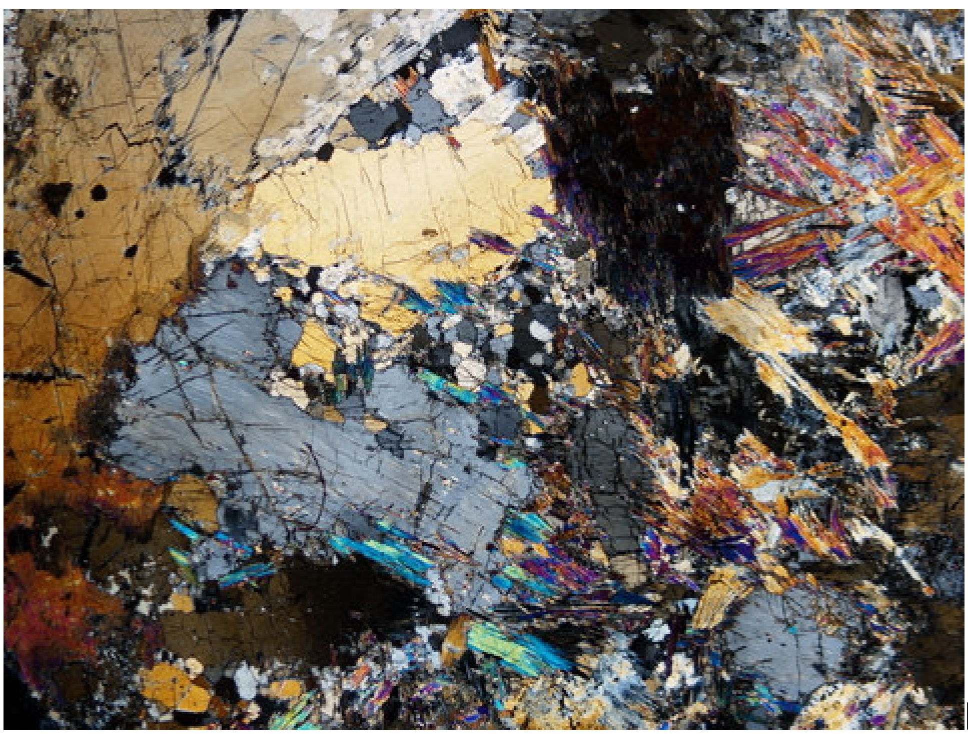


B

SPX - 04: A & B) View of the sample showing the fine- to medium- grained assemblage of ortho- and clinopyroxene, altered by slender sheaves of muscovite and actinolite. Medium-grained hornblende occurs on the left size displaying typical cleavages.
A) PPL, B) XPL, FOV = ~ 8.5 mm.

Sample: SPX - 05

LITHOLOGY: Websterite
ALTERATION TYPE: Trace oxidation, carbonate

Hand Sample Description:
Darker mafic sample, medium-grained, with trace fine sulfides. Not magnetic, no reaction with dilute HCl, no stain with sodium cobaltinitrite.

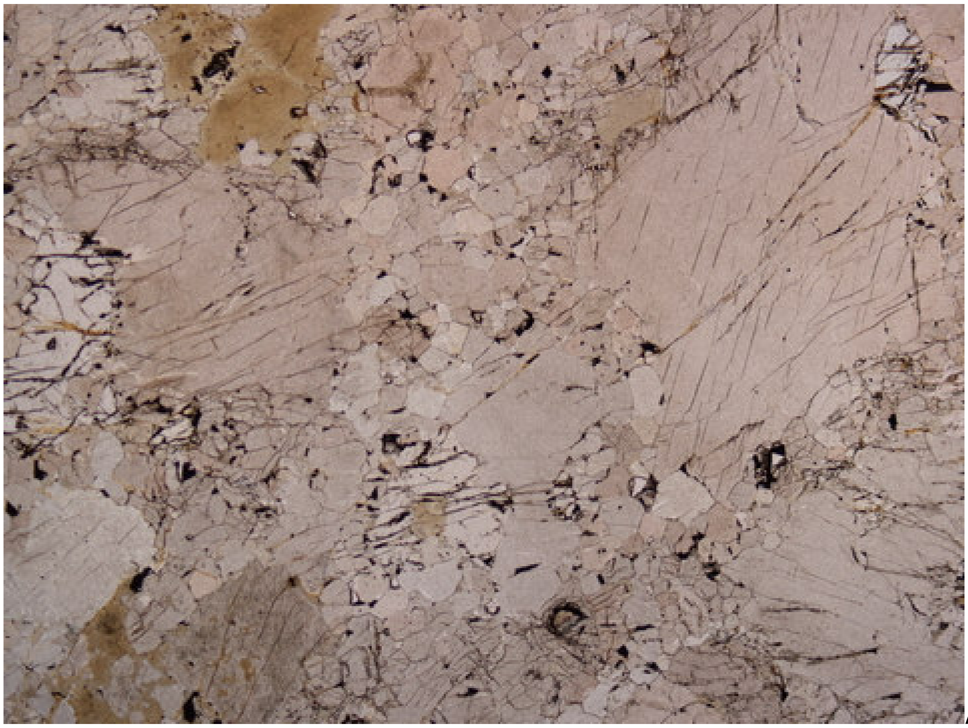
Thin Section Description:
Clinopyroxene and orthopyroxene dominate the sample, occurring with a bimodal grain size as medium-sized grains and as fine-grained aggregates that probably are the product of deformation-induced grain-size reduction. Interstitial hornblende and few masses of carbonate occur between pyroxenes. Pyrrhotite is disseminated, associated with chalcopyrite and pentlandite and locally altered by secondary marcasite indicative of incipient oxidation that is also represented by an orange stain of Fe-oxides / hydroxides lining grain boundaries. Trace wintergreen magnetite / ilmenite was also observed.

MAJOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Clinopyroxene	55	Fine- to medium-sized anhedral grains disseminated and blebs within orthopyroxenes	*Colorless to pale green*
Orthopyroxene	35	1) Medium-grained, anhedral to tabular, cracked, with a lamellar texture, blebs of hornblende and clinopyroxene. Commonly display irregular grain boundaries 2) Fine-grained, subhedral, in aggregates as mantle around coarser grains and bands within coarser grains	*low δ colors, common cleavage intersection at 87º*
?Hornblende	05	Fine to medium-sized masses interstitial to pyroxenes and blebs within clinopyroxenes	*Brownish, pleochroic*

MINOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Pyrrhotite	01	Fine anhedral grains with chalcopyrite and pentlandite, locally lamellar with development of secondary marcasite	
Fe-oxides / hydroxides	01	Orange-red stain lining grain boundaries	
Pentlandite	tr	Very fine masses and lamellae within pyrrhotite	
Marcasite	tr	Lamellar alteration of pyrrhotite	
Carbonate	tr	Rare very fine masses interstitial, associated with Fe-oxides / hydroxides	
Plagioclase	tr	One grain	
Chalcopyrite	tr	Very fine masses and lamellae within pyrrhotite	
Magnetite / Ilmenite	tr	Very fine anhedral magnetite grains disseminated or as blebs within orthopyroxene, sporadically associated with ilmenite	



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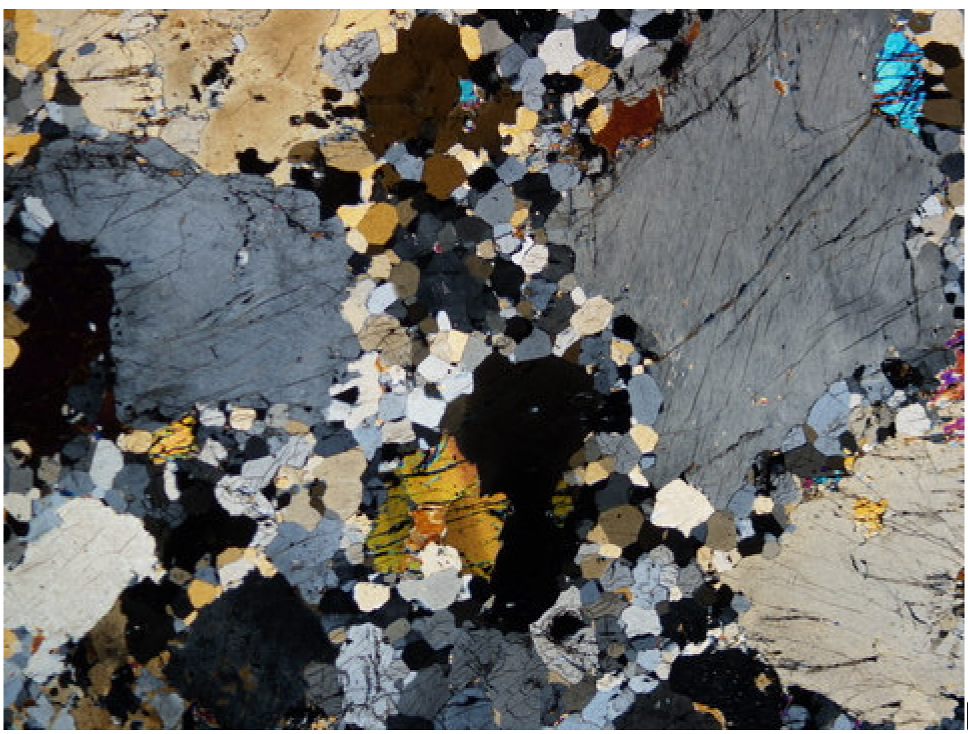


B

SPX - 05: A & B) Representative view of the sample showing a bimodal grain size of the ortho- and clinopyroxene assemblage similar to **SPX-03** with interstitial hornblende. Note the coarser size of the original grains compared to pyroxenes in **SPX-03**, and the *core-and-mantles* textures.
A) PPL, B) XPL, FOV = ~ 8.5 mm.

Sample: SPX - 06

LITHOLOGY: Gabbro
ALTERATION TYPE: Weak amphibole (uralite), oxidation

Hand Sample Description:
Medium- grained sample composed of approx. 60% black mafic and 40% creamy felsic minerals, displaying a clear planar preferred orientation marked by the elongation of the mafic grains. Not magnetic, no reaction with dilute HCl, no stain with sodium cobaltinitrite (no K-feldspar).

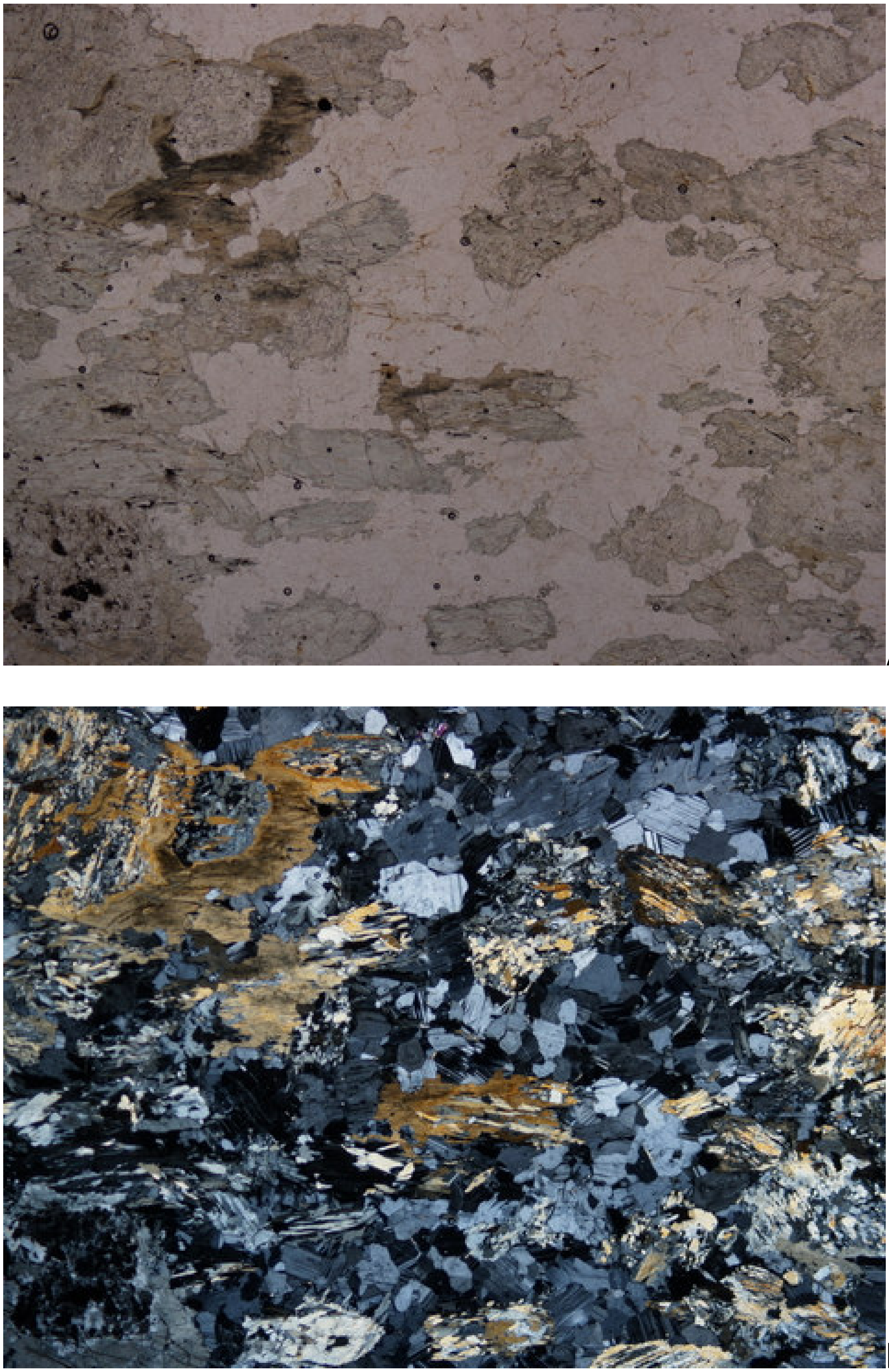
Thin Section Description:
The sample is characterized by the presence of plagioclase, forming a granular groundmass around clusters of secondary amphibole ± phlogopite ± rutile, resulting form the nearly complete replacement of primary mafic phases that likely included partially preserved hornblende. A weak fabric is defined by the elongation of clusters of amphibole.
Plagioclase composition using the Michel Levy method yielded an anorthite content of approximately 56% (labradorite) suggesting a gabbroic lithology.
Trace pyrite occurs, locally replaced by marcasite or associated with hematite.

MAJOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Plagioclase	55	Fine- to medium-grained, anhedral with polysynthetic twinning. Forms the sample groundmass Twins are typically pinched or bent and extinction commonly undulous, indicating internal deformation. Extinction angles were measured on 4 grains with the maximum reaching 31º, giving an anorthite content of approx. 56% (Michel Levy method).	
?Amphibole ?uralite	40	Fine, anhedral to slender grains, foliated, locally with cleavages intersecting at 124º. Occurs in elongated clusters as secondary replacement of a primary mafic phase	*Light-colored, pleochroic*

MINOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
?Hornblende	03	Medium-grained masses disseminated, locally forming a corona around clusters of amphibole, likely as remnant of primary hornblende	
?Rutile	tr	Very fine needles and subhedral grains, disseminated within masses of amphibole	*White to colorful IR*
Pyrite	tr	Very fine masses, rimmed or altered by hematite	
Hematite	tr	Few anhedral masses, commonly associated with pyrite	*Red IR*
?Marcasite	tr	Rare fine anhedral lamellar grains	*Anisotropic*



A

B

SPX - 06: A & B) Representative view of the sample showing the plagioclase groundmass with disseminated masses of pale amphibole commonly elongated in the EW direction.
A) PPL, B) XPL, FOV = ~ 8.5 mm.

Sample: 01 - A

LITHOLOGY: Contact gabbro / websterite
ALTERATION TYPE: Oxidation

Hand Sample Description:
Zoned sample, made of subparrallel zones of 1) Medium-grained rock of intermediate composition, cut by a very thin oxidized fracture, and 2) partly reddish and oxidized zone of fine- to medium-sized mafic minerals with interstitial sulfides. Magnetic in the mafic / sulfides zone, no reaction with dilute HCl, no stain with sodium cobaltinitrite (no K-feldspar).

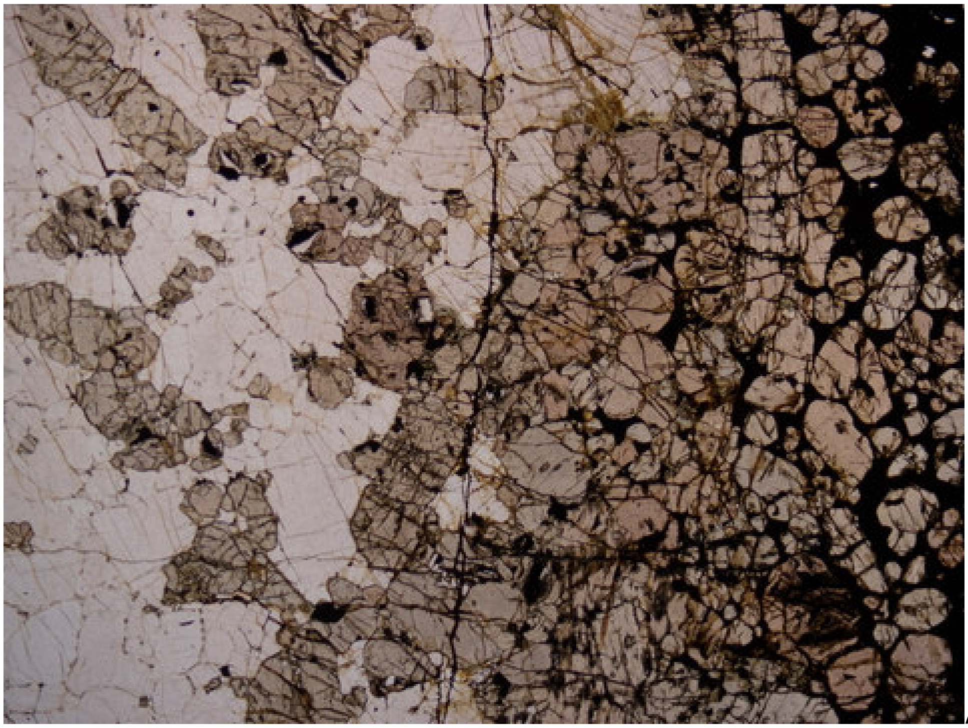
Thin Section Description:
The sample contains the contact between a fine- to medium-sized gabbro and a mineralized websterite. The gabbro contains labradorite plagioclase (composition ~ An_{53} based on three measurements) and lesser clinopyroxene and orthopyroxene. Fine anhedral grains of ilmenite / magnetite are disseminated. The contact is marked by an abrupt transition to the pyroxenite, formed by fine to medium-sized granular clino- and ortho-pyroxenes disseminated in a discontinuous interstitial matrix of pyrrhotite ± chalcopyrite ± pyrite.
Alteration is dominated by oxidation with pyrrhotite being variously replaced by marcasite and rimmed by very fine unaltered pyrite. Interstitial pyrite and chalcopyrite are unaltered, but open grain boundaries and fractures are filled with Fe-oxides / hydroxides.
Additional alteration is marked by incipient development of masses of chlorite, serpentine and carbonate.

MAJOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Clinopyroxene	35	Fine- to medium-sized anhedral grains, likely representing primary (coarser, with irregular grain boundaries and undulous extinction) and recrystallized grains (finer, straight grain boundaries). Commonly containing sulfide blebs	*Colorless to pale greenish*
Orthopyroxene	25	Fine- to medium-sized anhedral grains, containing blebs of clinopyroxene and / or sulfides. Occurs with clinopyroxene in a discontinuous interstitial matrix of sulfides	*Pinkish pleochroism Low δ colors, lamellar*
Plagioclase	15	Fine to medium-sized anhedral grains, with polysynthetic twinning, occurring as groundmass on one side of the section with disseminated pyroxenes. Rare clusters in the pyroxenite. A composition of approx. An_{53} was obtained based on 3 measurements (Michel Levy method)	*Polysynthetic twinning*
Pyrrhotite / marcasite	07	Fine to medium-sized interstitial masses, made of pyrrhotite variously altered by lamellar marcasite and typically lined by a corona of ?pyrite of various thicknesses.	
?Pyrite	05	Very fine-grained, anhedral, occurs in clusters as corona around pyrrhotite / marcasite. Also fine-grained, interstitial, unaltered.	

MINOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Chalcopyrite	03	Fine- to medium-sized masses, occurring with pyrrhotite and / or pyrite, commonly developing vermicular intergrowths with pyrite	
Fe-oxides / hydroxides	03	Stain forming an anastomosing network along sulfide and pyroxene grain boundaries, also as infill of very thin fractures	*Red-orange IR*
Serpentine	01	Extremely fine-grained, occurs as fracture infill and interstitial masses, associated with chlorite	
?Chlorite	01	Very fine interstitial masses and rims around sulfides / oxides	
?Quartz	tr-01	Fills open grain boundaries. Very fine-grained, strongly elongated perpendicular to boundaries	
Ilmenite / magnetite	tr	Fine anhedral masses of ilmenite occurring with sulfides and oxides, typically containing magnetite lamellae	*Anisotropic, no IR*
Carbonate	tr	Few fine blebs within pyroxenes	



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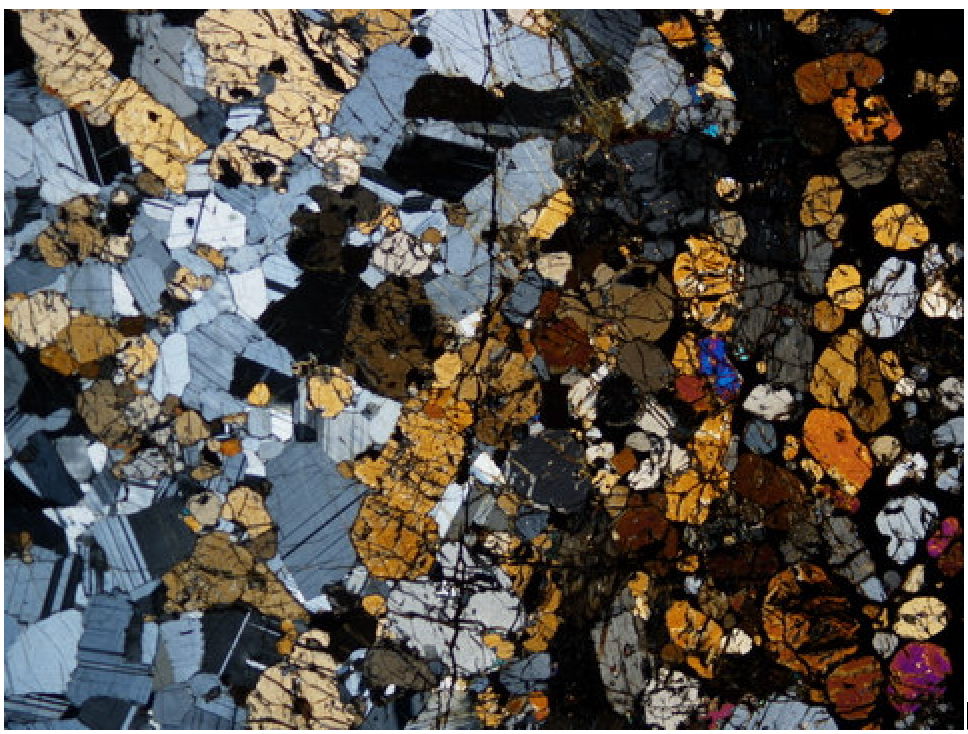


B

01 - A: A & B) View of the sample showing the gabbro / mineralized websterite contact.
A) PPL, B) XPL, FOV = ~ 8.5 mm.

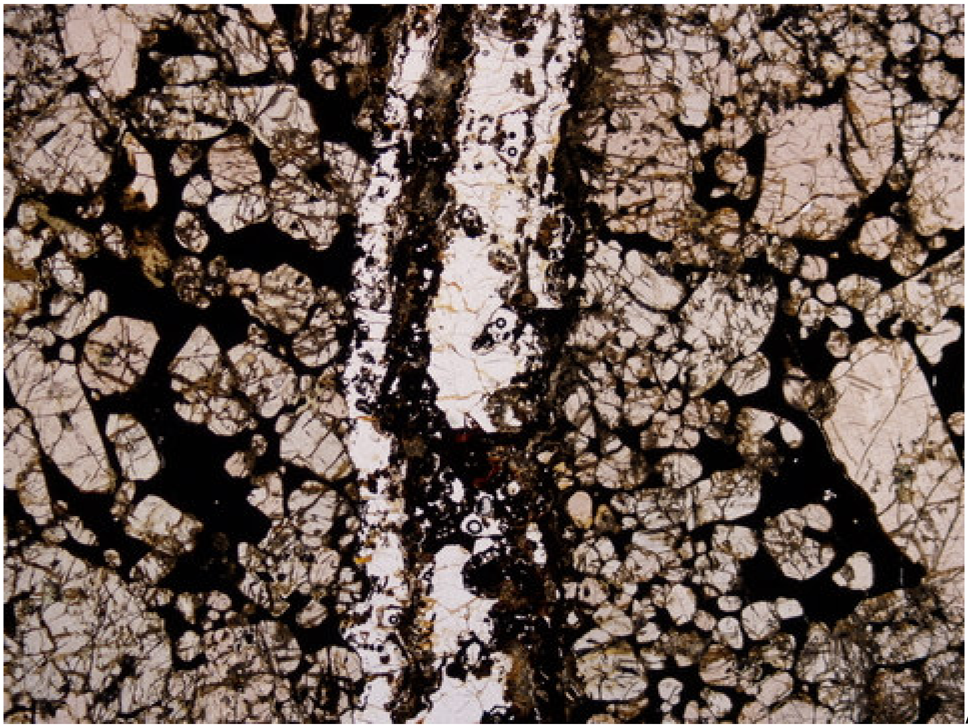
Sample: 01 - B
LITHOLOGY: Websterite
ALTERATION TYPE: Weak carbonate, serpentine, chlorite
Hand Sample Description:
Similar to the mafic / sulfides zone of the previous sample, made of fine- to medium-grained mafic minerals with interstitial sulfides. Cut by an oxidized reddish quartz – bearing vein< 3mm wide, locally reacting with dilute HCl (calcite). Magnetic, no stain with sodium cobaltinitrite (no K-feldspar).
Thin Section Description:
The sample resembles the previous pyroxenite, formed by a fine to medium-sized granular assemblage of clino- and orthopyroxenes, locally cemented by net-textured pyrrhotite ± chalcopyrite ± pyrite.
Alteration is marked by the presence of interstitial masses of carbonate ± serpentine ± chlorite that also rim pyroxene grain boundaries and fill cracks within pyroxenes.
Several veinlets cut the sample, filled with carbonate or, on one occasion with quartz ± carbonate ± pyrrhotite. The veinlets are typically associated with red Fe-oxides / hydroxides that also stain pyroxene cracks and grain boundaries. Further oxidation is marked by incipient replacement of pyrrhotite by marcasite that leaves unaltered the pentlandite rim around pyrrhotite as well as pyrite and chalcopyrite.

MAJOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Clinopyroxene	50	Fine- to medium-sized anhedral grains, fractured, with cracks and boundaries variously filled by carbonate ± serpentine ± Fe-oxides / hydroxides.	*Pleochroism*
Orthopyroxene	20	Fine- to medium-sized anhedral to tabular grains, with numerous cracks and grain boundaries variously filled by carbonate ± serpentine ± Fe-oxides / hydroxides.	*Low δ colors, lamellar*
Pyrrhotite	08	Fine to medium-sized interstitial masses, variously altered by marcasite and typically lined by a corona of ?pentlandite	

MINOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Serpentine	04	Extremely fine-grained clusters. Fills cracks in pyroxenes, forms interstitial masses, with carbonate and / or chlorite	
Carbonate	04	very fine-grained, with serpentine, filling open grain boundaries and cracks in pyroxenes. Also in veins	
Fe-oxides / hydroxides	03	Stain along veins, sulfide and pyroxene grain boundaries and as infill of very thin fractures	*Red-orange IR*
Plagioclase	01	Fine interstitial grains	
Quartz	03	Fine-grained, in a vein with carbonate and sulfides. On one side chalcedonic. Sporadic, interstitial in the groundmass.	
Chalcopyrite	02	Fine anhedral grains occurring with pyrrhotite and pyrite,	
Pyrite	02	Fine masses with pyrrhotite and chalcopyrite	
Marcasite	01	Incipient pyrrhotite alteration along cracks and boundaries, locally more devolved in the vicinity of oxidized fractures	
Pentlandite/ millerite	01	Very fine discontinuous coronas around pyrrhotite.	*?Anisotropic*
?Chlorite	tr-01	Very fine interstitial masses	
Ilmenite / magnetite	tr	Very fine interstitial masses, variously intermixed	*Anisotropic, no IR*



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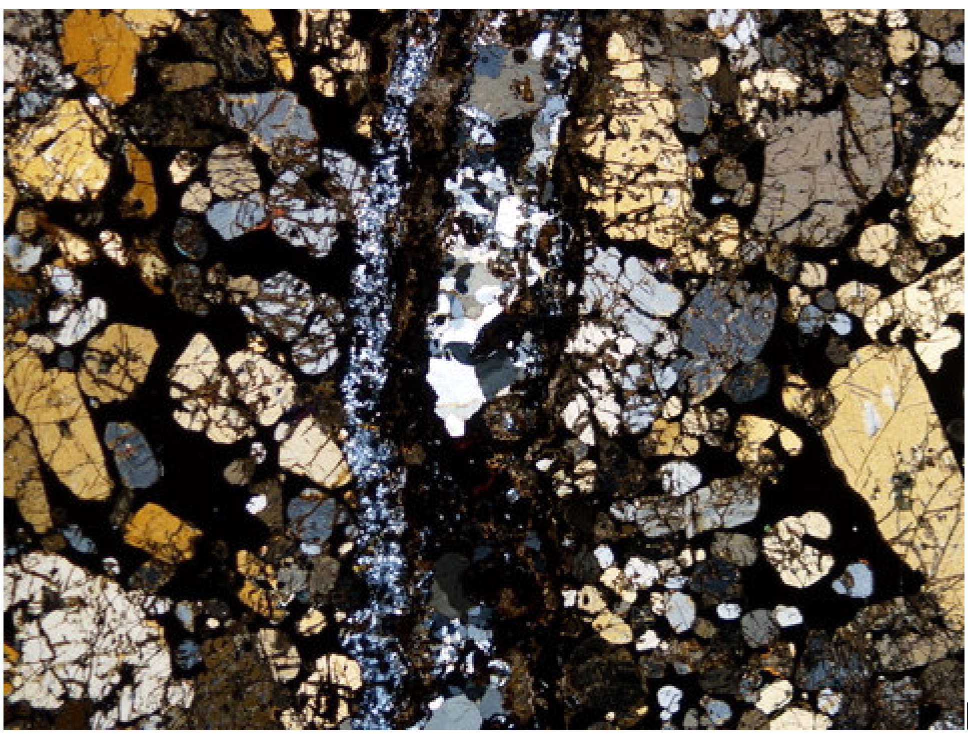
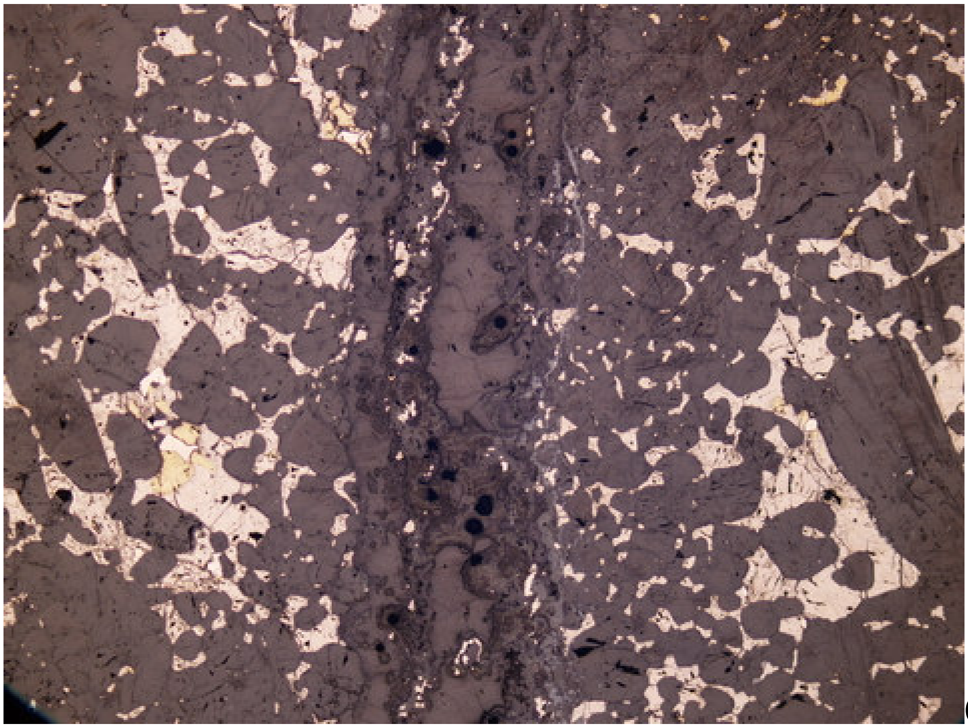


B

01 - B: A & B) Representative view of the sample showing the mineralized websterite characterized by a interstitial groundmass of sulfides cut by a quartz – carbonate vein (chalcedony on the left side of the vein)
A) PPL, B) XPL, FOV = ~ 8.5 mm.



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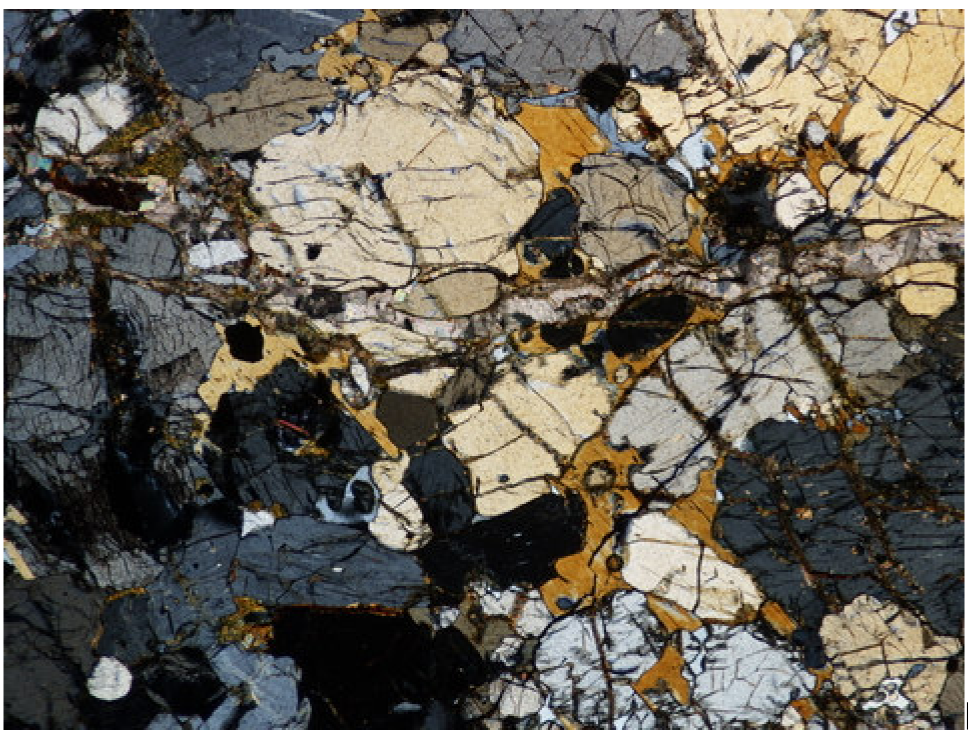


D

01 - B:
C) Same view as above showing dominant unaltered interstitial pyrrhotite, RL, FOV = ~ 8.5 mm.
D) Detailed view of the sample showing a thin EW – oriented veinlet of very fine carbonate and very fine serpentine filling cracks within pyroxenes. XPL, FOV = ~ 3.5 mm.

Sample: 01 - C

LITHOLOGY: ?Websterite
ALTERATION TYPE: Weak chlorite, sericite, carbonate

Hand Sample Description:
Medium-grained, equigranular mafic sample containing euhedral mafic grains and cut by very thin winding and oxidized fractures. Weakly magnetic, no reaction with dilute HCl, no stain with sodium cobaltinitrite (no K-feldspar).

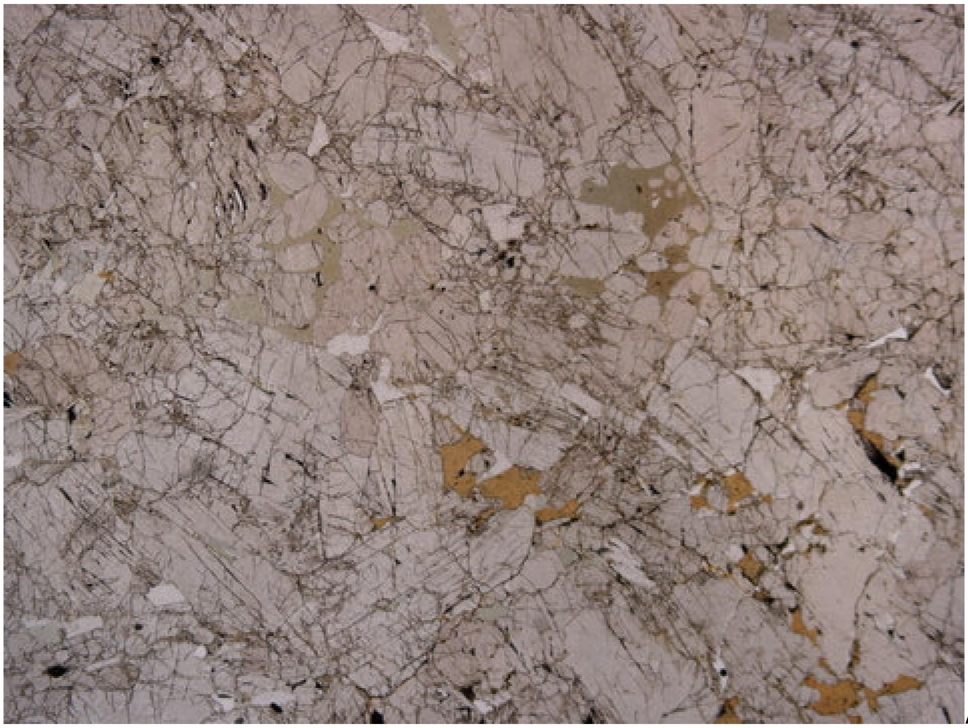
Thin Section Description:
A granular assemblage of fine to medium-grained orthopyroxene and lesser clinopyroxene forms the sample. Sporadic interstitial grains of quartz occur as well as masses of biotite, commonly altered to chlorite and enclosing fine pyroxenes. Interstitial clusters of fine sericite ± carbonate ± serpentine are disseminated locally and additionally fill pyroxene cracks and open boundaries. Magnetite is disseminated and trace pyrite and chalcopyrite was observed. Several thin cracks cut the sample, lined by Fe-oxides / hydroxides.

MAJOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Orthopyroxene	70	Fine- to medium-grained, anhedral to tabular, cracked, commonly lamellar with blebs of biotite and chlorite. Forms the sample groundmass	*low δ colors,*
Clinopyroxene	15	Fine- to medium-grained, lamellar, anhedral to subhedral, cracked.	*Oblique extinction*

MINOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Hornblende	03	Fine to medium-sized masses interstitial to pyroxenes with the larger fraction commonly enclosing fine pyroxenes. Also as fine blebs within pyroxenes. Likely after biotite	*Brownish, pleochroic, 124º cleavage*
?Sericite	02	Extremely fine-grained clusters and very fine sheaves altering pyroxenes along fractures and grain boundaries	
Plagioclase	01	Fine interstitial grains	
Biotite	tr-01	Rare fine interstitial masses, commonly enclosing pyroxenes	*Birds eye*
Carbonate	tr-01	Fine-grained masses with sericite, replacing pyroxenes	
Magnetite / Ilmenite	tr-01	Very fine anhedral grains of variously intermixed magnetite / ilmenite	
Fe-oxides / hydroxides	tr-01	Very thin veinlets throughout	
?Serpentine	tr	Very fine stylolitic ribbons within pyroxenes	
Quartz	tr	Few fine interstitial grains	
Pyrite	tr	On very fine mass associated with chalcopyrite	
Chalcopyrite	tr	Very fine grains, with pyrite or as inclusions in magnetite	



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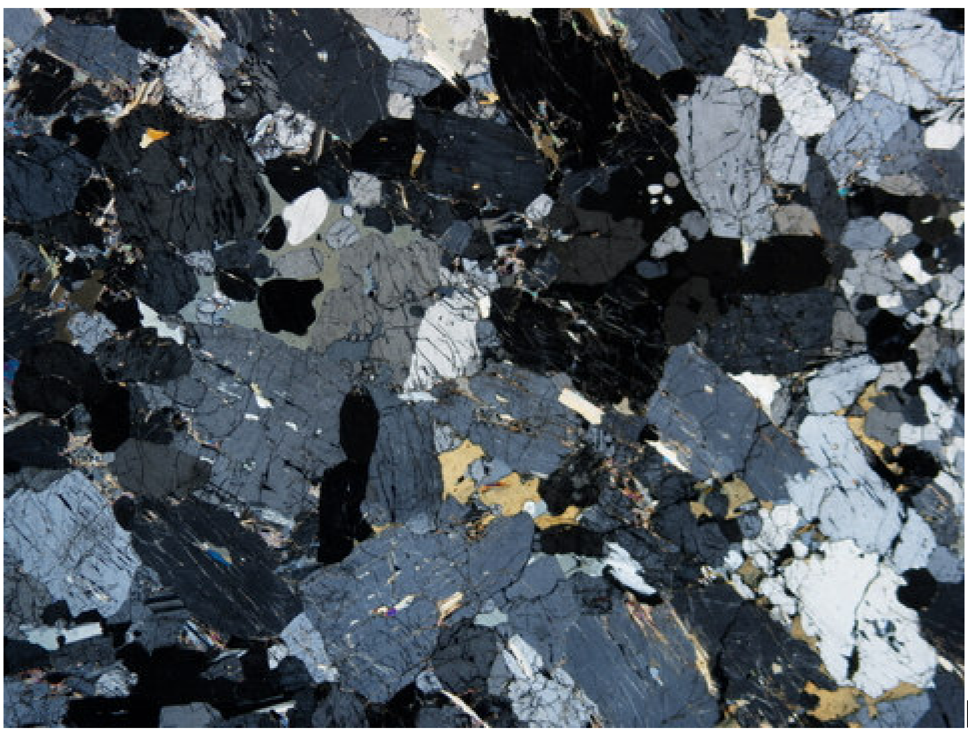


B

01 - C: A & B) Representative view of the sample showing dominant weakly birefringent orthopyroxene with interstitial hornblende. The section is slightly too thin, further accentuating the low birefringent colors (gray tones).
A) PPL, B) XPL, FOV = ~ 8.5 mm.

Sample: 04 - A

LITHOLOGY: Mineralized websterite
ALTERATION TYPE: None

Hand Sample Description:
Mafic sample, fine-grained, characterized by a very fine sulfide dissemination along grain boundaries. Magnetic, no reaction with dilute HCl, no stain with sodium cobaltinitrite (no K-feldspar).

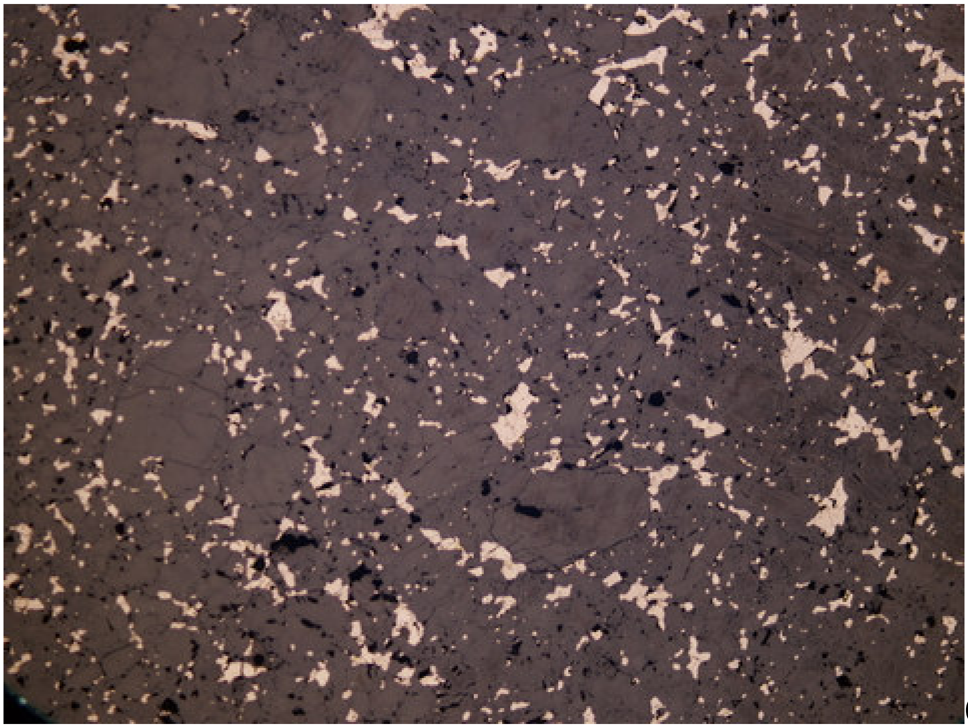
Thin Section Description:
The sample is a mineralized websterite, formed by a granular assemblage of orthopyroxene and clinopyroxene, both typically occurring with a finer grain size than the one observed in previous samples. Rare blebs of phlogopite occur within pyroxenes.
Interstitial pyrrhotite typically occurs at triple junctions, containing inclusions and bands of chalcopyrite and more rarely inclusions and bands of pentlandite.
One mass of carbonate was also observed.

MAJOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Orthopyroxene	50	Fine- to medium-sized anhedral grains, commonly lamellar, containing blebs of clinopyroxene and / or phlogopite. Locally cracked and corroded	*Low δ colors, lamellar Pinkish pleochroism*
Clinopyroxene	35	Typically fine, rarely medium-sized anhedral grains, locally displaying sector zoning or lamellar textures with intergrowths and blebs of orthopyroxenes and phlogopite	*Oblique extinction*
Pyrrhotite / marcasite	10	Fine interstitial masses, made of pyrrhotite, only locally altered by lamellar marcasite.	

MINOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Chalcopyrite	tr-01	Very fine subrounded inclusions and bands within pyrrhotite	
?Phlogopite	tr	Fine blebs within pyroxenes	
Carbonate	tr	One fine interstitial mass	
?Pentlandite	tr	Rare very fine inclusions and bands with chalcopyrite in pyrrhotite	



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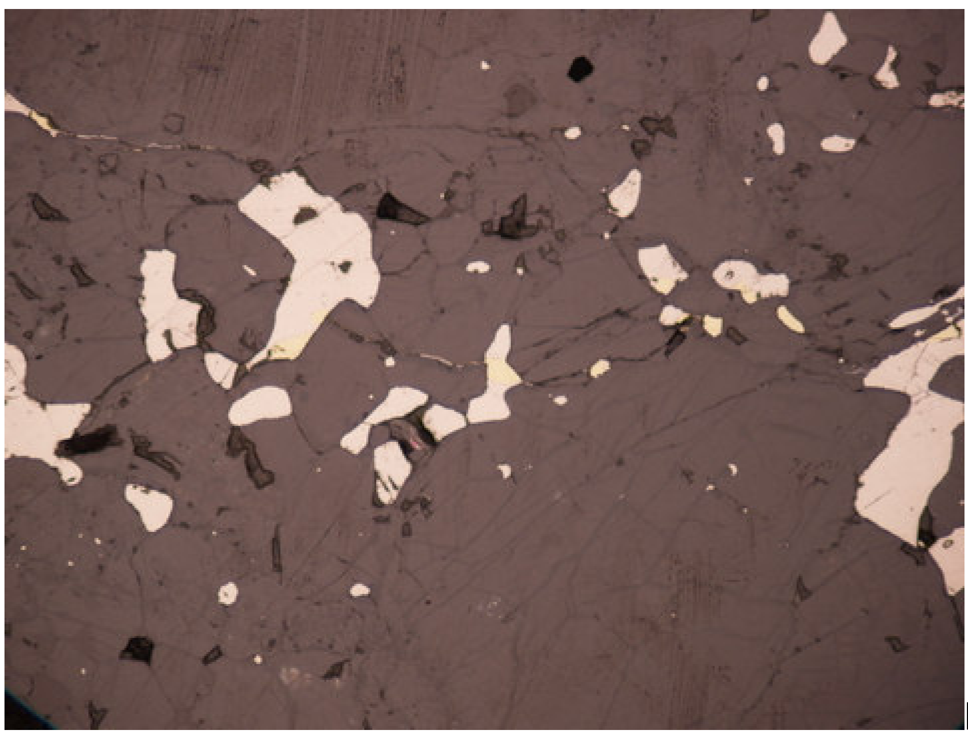


D

04 - A: C) Same view as above showing fine interstitial masses of pyrrhotite. XPL, FOV = ~ 8.5 mm.
D) Detailed view of the sample, showing the occurrence of inclusions of pentlandite within unaltered pyrrhotite. RL, FOV = ~ 1.75 mm.

Sample: 04 - B

LITHOLOGY: Websterite
ALTERATION TYPE: Incipient brown amphibole, titanite

Hand Sample Description:
Medium-grained mafic sample, with approx. 5% interstitial sulfides, locally stained by orange oxidation. Magnetic, no reaction with dilute HCl, no stain with sodium cobaltinitrite (no K-feldspar).

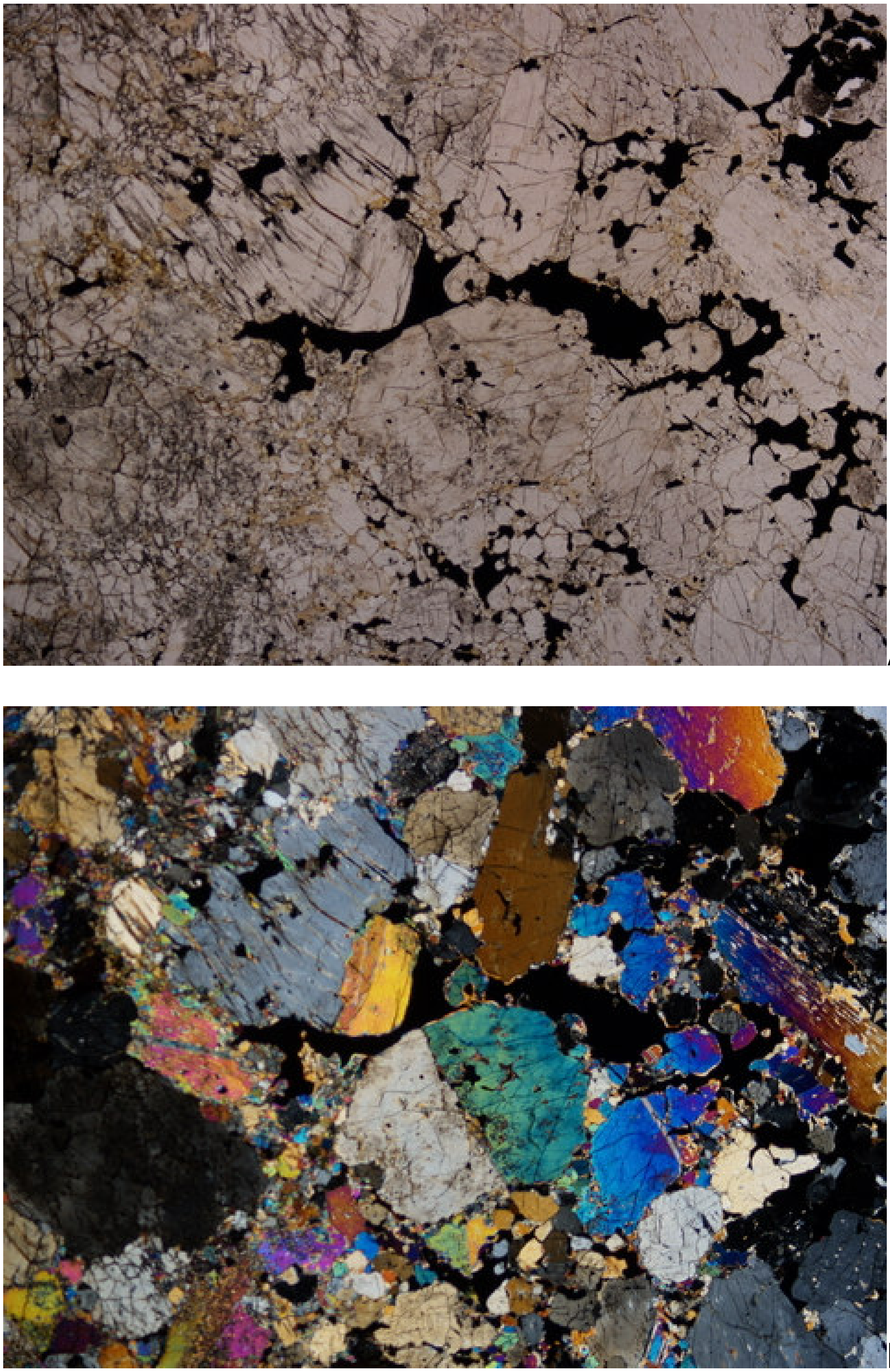
Thin Section Description:
This websterite is mineralized and weakly altered. Dominant clinopyroxene and orthopyroxene form a granular assemblage of fine to medium-size grains, vaguely bimodal, possibly due to partial recrystallization to finer grains. Incipient alteration is marked by the occurrence of fine blebs of brown amphibole within pyroxene, and by the presence of the same brown amphibole along grain boundaries and triple junctions. Very fine titanite occurs disseminated.
Interstitial pyrrhotite is commonly associated with brown amphibole and contains inclusions of chalcopyrite and sporadically pentlandite. Marcasite alteration of pyrrhotite is very rare and possible chromite was observed on one occasion.

MAJOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Clinopyroxene	55	Fine to medium-sized anhedral grains occurring as groundmass with orthopyroxene. Contains blebs of brown amphibole, and lamellae of orthopyroxene. The finer fraction possibly results from the dynamic recrystallization of the coarser grains	
Orthopyroxene	25	Fine to medium-sized anhedral grains occurring as groundmass with clinopyroxene. Contains blebs of brown amphibole, and lamellae of clinopyroxene. The finer fraction likely results from the dynamic recrystallization of the coarser grains to a finer grain size	
Pyrrhotite	10	Fine to very fine interstitial blebs and masses, sporadically altered to marcasite	
Brown amphibole Hornblende	05	Fine to very fine interstitial masses typically occurring with sulfides along grain boundaries, cracks and triple junctions. Also as very fine bleb-like ?exsolutions (?alteration) within pyroxene	*124º cleavage intersection, pale brown pleocrhoism*

MINOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Chalcopyrite	01	Fine anhedral inclusions within pyrrhotite	
?Titanite	tr-01	One mass around pyrrhotite, and very fine grains throughout	
Pentlandite	tr	Rare fine inclusions within pyrrhotite	
?Chromite	tr	One subhedral cubic grain	
Marcasite	tr	Grayish lamellar alteration of pyrrhotite	



A

B

04 - B: A & B) Representative view of the sample showing the fine- to medium-grained assemblage of ortho- and clinopyroxene with interstitial sulfides and hornblende.
A) PPL, B) XPL, FOV = ~ 8.5 mm.

Sample: 04 - C

LITHOLOGY: ?Websterite
ALTERATION TYPE: Actinolite, talc

Hand Sample Description:
Medium-grained mafic sample, with a more patchy texture than 04 – B, containing only trace sulfides and locally stained by orange oxidation. Magnetic, no reaction with dilute HCl, no stain with sodium cobaltinitrite (no K-feldspar).

Thin Section Description:
The sample is pervasively altered, with most of the original mineralogy and texture being replaced by a granular assemblage of foliated actinolite ± talc ± magnetite ± carbonate. Cores of pyroxene grains are sporadically preserved.
Rare pyrrhotite is also preserved with its inclusions of chalcopyrite and pentlandite and is locally coated by thin rims of Fe-oxides that commonly stain grain boundaries.

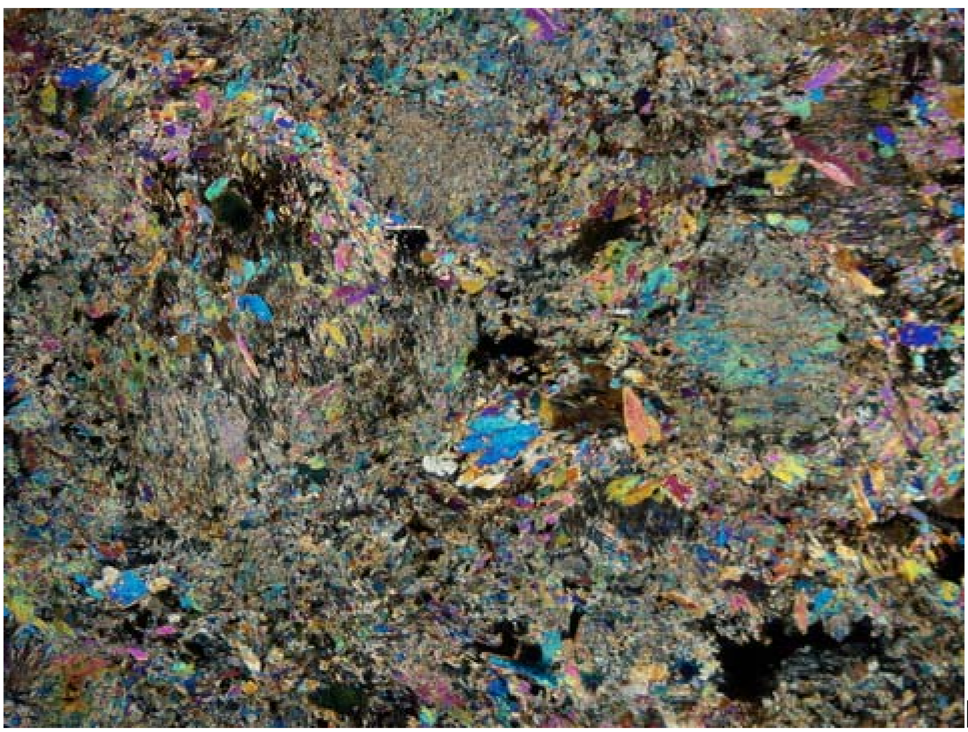
MAJOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Talc	30	Fine to medium-size slender sheaves and masses, occurring with actinolite	*Extreme δ colors*
Actinolite	55	Fine- to very fine-grained, anhedral to subhedral diamond-shaped or slender. Occurs as groundmass throughout associated with talc and ?carbonate, pseudomorphing original mafic minerals (?pyroxenes)	
Pyroxene	05	Fine, anhedral, weakly preserved	*88º cleavage intersection*

MINOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Carbonate / titanite	03	Fine to very fine anhedral grains, commonly associated with Fe-oxides and disseminated within masses of actinolite	
Magnetite	02	Extremely fine anhedral to slender grains, disseminated	
Fe-oxides / hydroxides	02	Extremely fine-grained, occurs in masses and ribbons staining grain boundaries	
Pyrrhotite	tr-01	Fine to very fine anhedral to oblong grains disseminated	
Chalcopyrite	tr	Fine inclusions within pyrrhotite	
Pentlandite	tr	One fine mass within pyrrhotite	

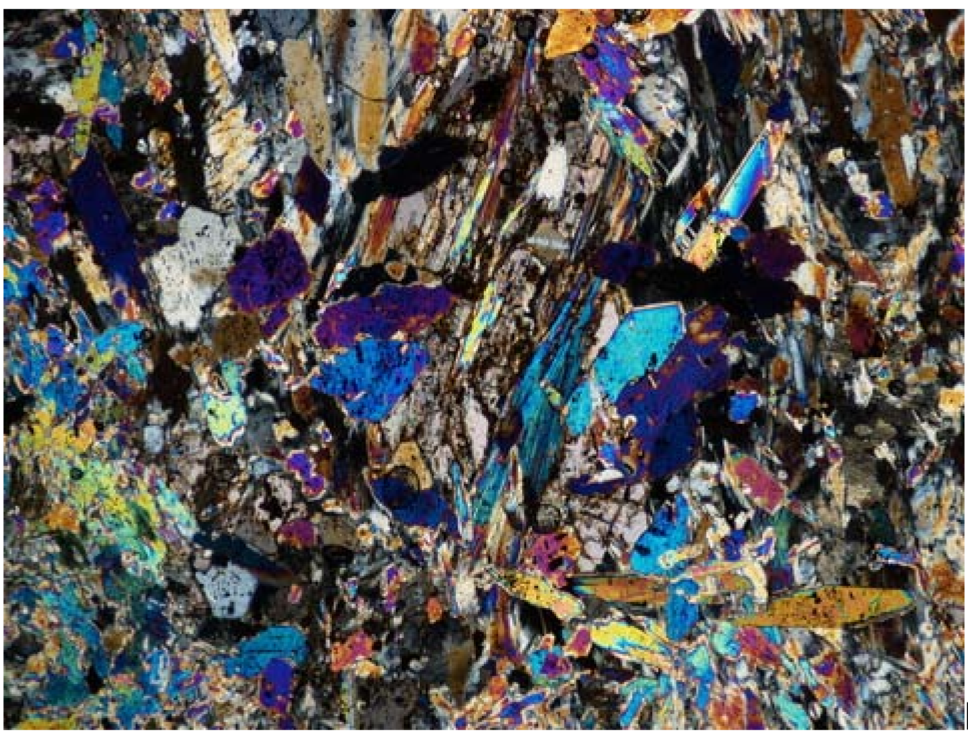
A



B

04 - C: A & B) Overview of the sample showing near complete replacement of the original rock by very fine foliated talc ± actinolite ± carbonate. The anhedral shapes of original pyroxenes are locally preserved.
A) PPL, B) XPL, FOV = ~ 8.5 mm.


C


D

04 - C: C & D) Detailed view showing slender to diamond-shaped actinolite associated with carbonate (pinkish lower right) and talc.
A) PPL, B) XPL, FOV = ~ 3.5 mm.

Sample: 05 - B

LITHOLOGY: ?Pyroxenite
ALTERATION TYPE: Amphibole, chlorite, titanite; oxidation

Hand Sample Description:
?Fine-grained mafic sample, cut by thin subparallel veinlets, oxidized and vuggy. Not magnetic, no reaction with dilute HCl, no stain with sodium cobaltinitrite (no K-feldspar).

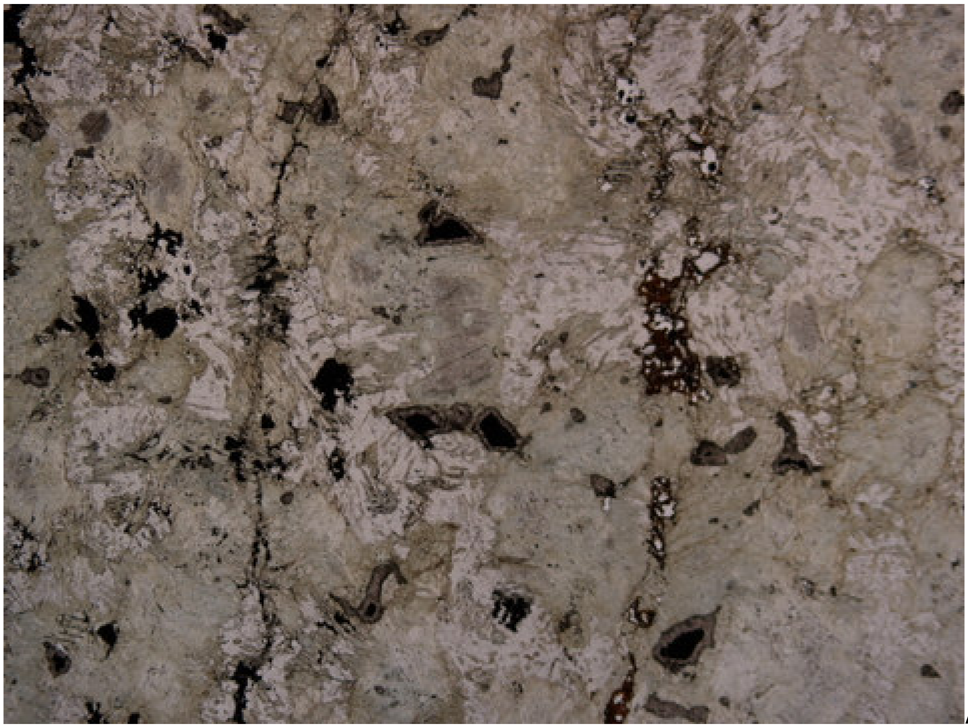
Thin Section Description:
The section is formed by a granular mixture of partially preserved pyroxenes and of mafic alteration minerals. Scattered fine, lamellar pyroxenes are replaced to various extents by a foliated green amphibole, commonly preserving pyroxene cores although complete replacement is also common. An interstitial groundmass of possible chlorite occur around pyroxenes and amphibole, containing finer slender grains and foliated sheaves of the same green amphibole. Fine ilmenite occurs throughout, rimmed to completely replaced by coronas of titanite likely replacing original magnetite. Fine pyrrhotite is disseminated and forms thin veinlets throughout, both typically intensively replaced by marcasite. Sporadic veins of Fe-oxides / hydroxides are formed after pyrrhotite / marcasite and the associated chalcopyrite is commonly coated by an oxidation rim of covellite.
Trace pentlandite was also observed.

MAJOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Amphibole	55	Fine-grained, anhedral to slender, commonly foliated grains occurring throughout and as variously developed pyroxene alteration	*124º cleavage intersection*
?Chlorite	30	Fine anhedral masses occurring as anastomosing groundmass	
?Pyroxene	05	Fine to medium-sized anhedral cores, variously preserved within masses of amphibole	*Colorless to pinkish, lamellar*

MINOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Titanite	03	Extremely fine-grained clusters disseminated, commonly with preserved core of ilmenite	
Pyrrhotite / marcasite	03	Fine anhedral masses of marcasite with rarely preserved pyrrhotite rims, associated with Fe-oxides and chalcopyrite. Occurs in subparallel veinlets and disseminated	*grayish and foliated*
Chalcopyrite	01	Fine to very fine grains and masses in veins and disseminated, commonly coated by covellite	
?Ilmenite	tr	Fine, anhedral cores within masses of titanite	*Anisotropic*
Fe-oxides / hydroxides	tr	Very fine-grained, in leached veinlets after pyrrhotite / marcasite with preserved chalcopyrite	*Orange IR and in PPL,*
Covellite	tr	Common rim around disseminated chalcopyrite	
?Pentlandite	tr	Very fine inclusions within marcasite-altered pyrrhotite and weak very fine dissemination	



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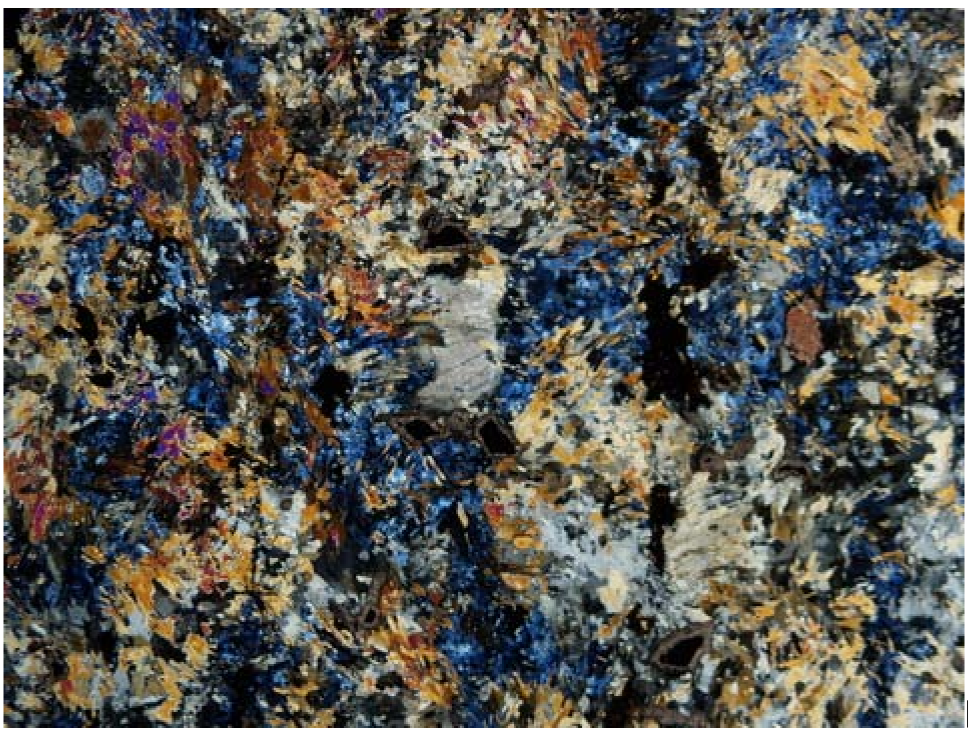
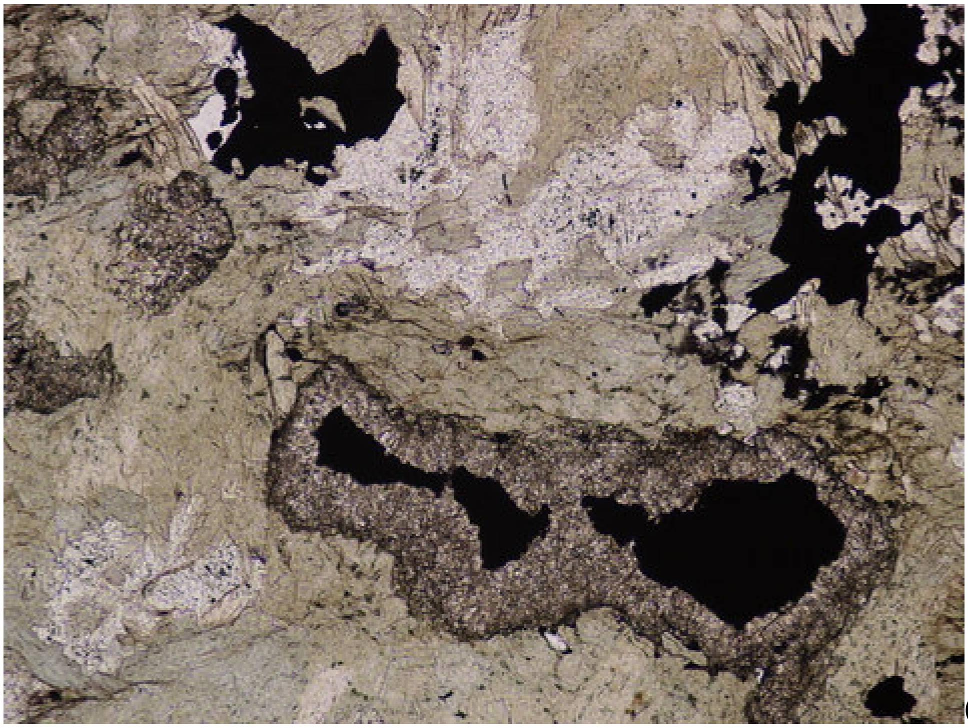


B

05 - B: A & B) Representative view of the sample, showing colorless masses of amphibole in a groundmass of greenish chlorite (anomalous blue interference colors in XPL), with disseminated sulfides ± oxides ± titanite.
A) PPL, B) XPL, FOV = ~ 8.5 mm.



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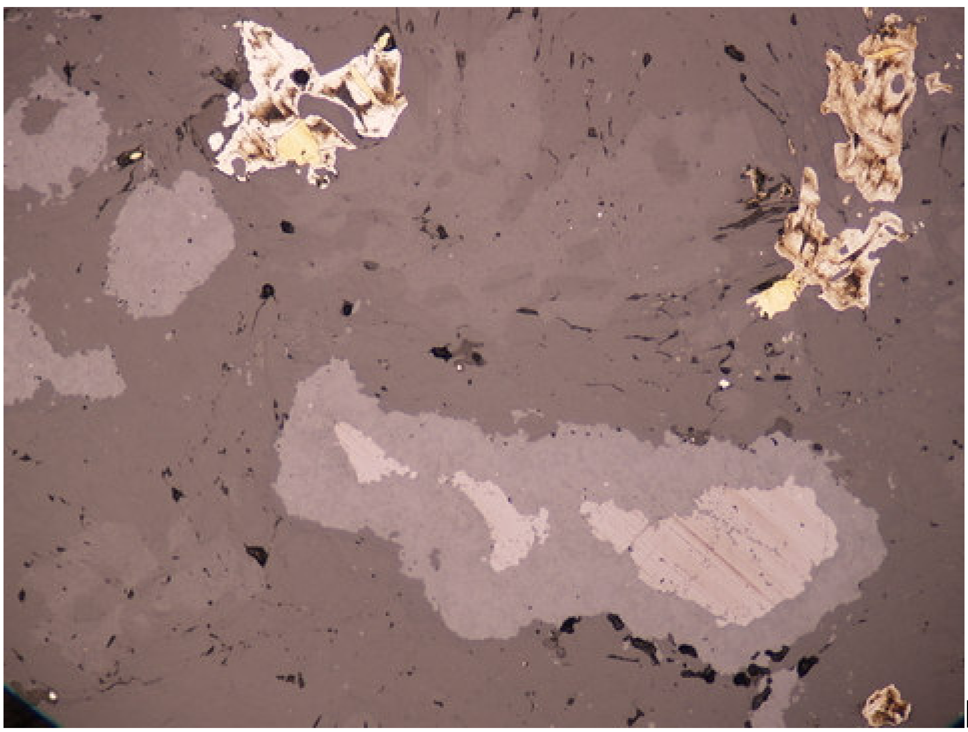


D

05 - B: C & D) Detailed view of the sample showing the occurrence of anhedral marcasite-altered pyrrhotite associated with chalcopyrite as well as masses of very fine-grained titanite, locally preserving a core of ilmenite.
A) PPL, B) XPL, FOV = ~ 1.75 mm.

Sample: 07 - A

LITHOLOGY: ?Websterite
ALTERATION TYPE: Actinolite, ?hornblende, chlorite

Hand Sample Description:
Zoned mafic sample, made of a medium-grained crystalline zone (~70%) and of an aphanitic to fibrous-looking zone (~30%). Magnetic with very fine and scarce sulfide dissemination, no reaction with dilute HCl, no stain with sodium cobaltinitrite (no K-feldspar).

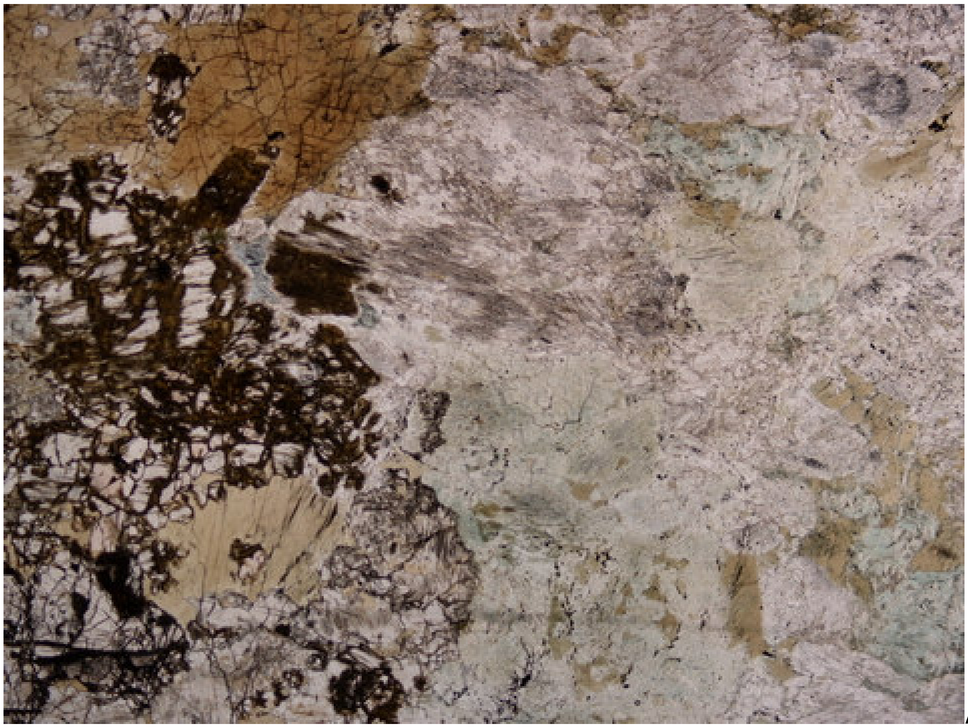
Thin Section Description:
The sample is an altered websterite, made of clinopyroxene, lesser orthopyroxene and rare brown amphibole (hornblende). All minerals are pitted by blebs of phlogopite that also developed along grain boundaries and cracks associated with very fine serpentine. Masses of chlorite replace original amphibole and a secondary feathery to slender colorless amphibole associated with very fine magnetite replace pyroxene to various extents.
Masses of pyrrhotite occur throughout, associated with chalcopyrite and pentlandite.

MAJOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Clinopyroxene	35	Fine to medium-grained, anhedral, lamellar or with simple twin. Contains bleb-like intergrowth of phlogopite and orthopyroxene. Variously altered by uralite	
Actinolite ?Uralite	20	Very fine-grained, feathery to slender grains, commonly associated with magnetite, likely after pyroxenes. Also as very fine aligned inclusion with clinopyroxene.	
Brown amphibole ?hornblende	15	Medium- to coarse-sized masses, displaying cleavages. Also as extremely fine aligned needles within pyroxenes	*124º cleavage intersection*
Orthopyroxene	15	Fine- to medium-sized lamellar grains, with blebs and of phlogopite and clinopyroxene, occurring as groundmass with clinopyroxene. Variously altered by uralite	*Straight extinction, low δ colors*
?Serpentine	05	Extremely fine-grained masses developed along pyroxene cracks and grain boundaries	

MINOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Phlogopite	03	Fine to very fine blebs within pyroxene and interstitial masses around pyroxenes	
Chlorite	03	Disseminated masses of foliated grains, commonly associated with brown amphibole	*Green pleochroism*
Pyrrhotite	tr-01	Fine-grained, anhedral to elongated. Occurs disseminated, intergrown with chalcopyrite and pentlandite	
Magnetite	tr-01	Fine- to extremely fine-grained, anhedral to lath-like, occurring along pyroxene lamellae and grain boundaries	
Chalcopyrite	tr	Very fine bands and inclusions within pyrrhotite	
Pentlandite	tr	Very fine bands and inclusions within pyrrhotite	



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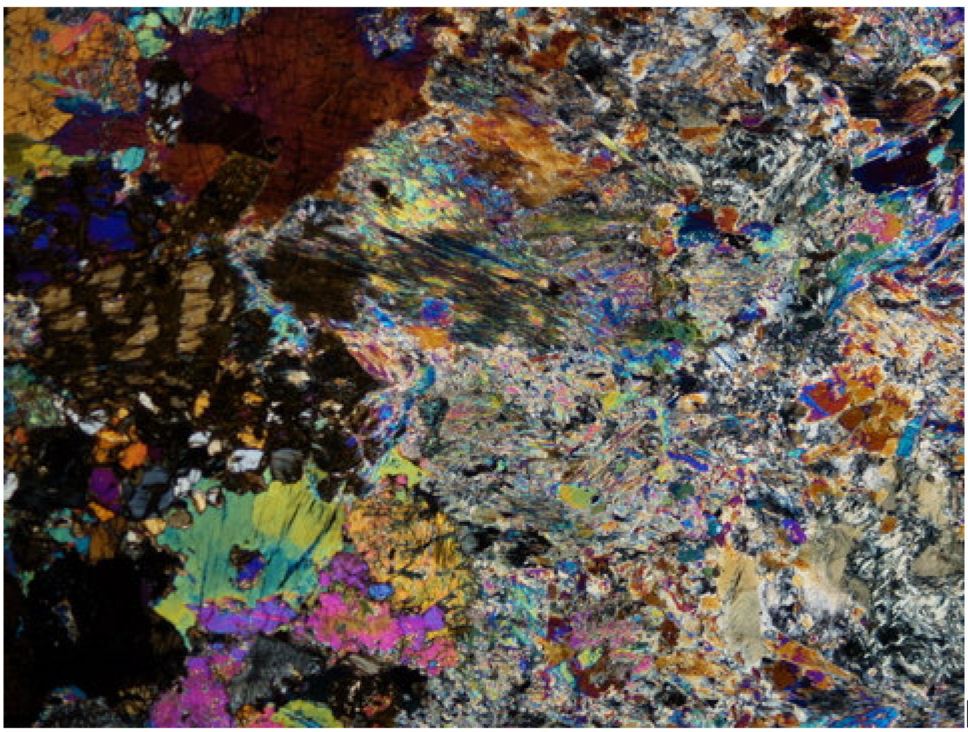


B

07 - A: A & B) Representative view of the sample showing intermixed primary and alteration minerals. Original pyroxenes (top center, center left) are variously preserved, commonly replaced by foliated greenish actinolite (bottom center) and by crack-filling serpentine (center left). Medium-grained, primary hornblende occurs while very fine-grained interstitial hornblende is likely of secondary origin. A) PPL, B) XPL, FOV = ~ 8.5 mm.

Sample: 07 - B

LITHOLOGY: Websterite
ALTERATION TYPE: Amphibole (actinolite), carbonate

Hand Sample Description:
Grayish sample, aphanitic to fibrous containing fine to medium-sized anhedral masses of a beige mineral, defining a weak preferred orientation. Traces of oxidation throughout. Magnetic, no reaction with dilute HCl, no stain with sodium cobaltinitrite (no K-feldspar).

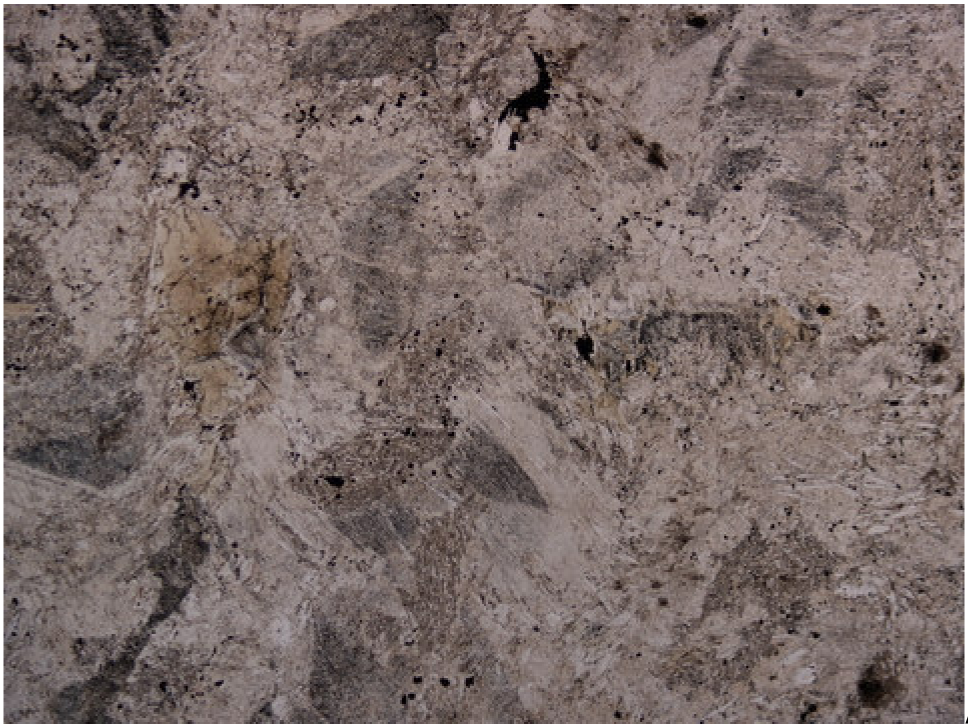
Thin Section Description:
The sample is an altered fine- to medium-grained granular websterite where clinopyroxenes and orthopyroxenes are only locally preserved. Pyroxene alteration varies from grains pitted by very fine magnetite and sheaves of actinolite to pseudomorphic replacement by aggregates of muscovite ± actinolite ± carbonate ± magnetite.
Grains of a partially preserved, earlier, brown amphibole also occur sporadically, weakly replaced by the same alteration assemblage as pyroxenes.
Unaltered pyrrhotite is disseminated, intergrown with chalcopyrite and pentlandite.

MAJOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
?Muscovite / talc	25	Fine to very fine foliated grains variously associated with magnetite, occurring as pyroxene pseudomorphs	
Carbonate	20	Clusters of fine to very fine anhedral grains, commonly intermixed with muscovite, amphibole and magnetite as alteration of pyroxenes	
Clinopyroxene	15	Fine to medium-grained, anhedral. Commonly pitted by very fine magnetite and intensively altered by very fine muscovite and actinolite	
Orthopyroxene	15	Fine- to medium-sized lamellar grains, more commonly preserved than clinopyroxene. Commonly pitted by magnetite and altered by muscovite ± actinolite ± carbonate	*Straight extinction, low δ colors*
Actinolite / uralite	15	Fine slender sheaves occurring within pyroxene,	
Magnetite	05	Fine to extremely fine, anhedral to euhedral elongated grains, occurring along cleavage plans, lamellae and grain boundaries of other phases and disseminated	

MINOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Brown amphibole	02	Fine blebs within preserved pyroxene and fine to medium-sized anhedral grains throughout	*120º cleavage intersection*
Pyrrhotite	tr-01	Fine-grained, anhedral to subrounded. Occurs disseminated with laths and inclusions of chalcopyrite and / or pentlandite	
Chalcopyrite	tr	Very fine bands masses within pyrrhotite	
Pentlandite	tr	Very fine masses intergrown with pyrrhotite	



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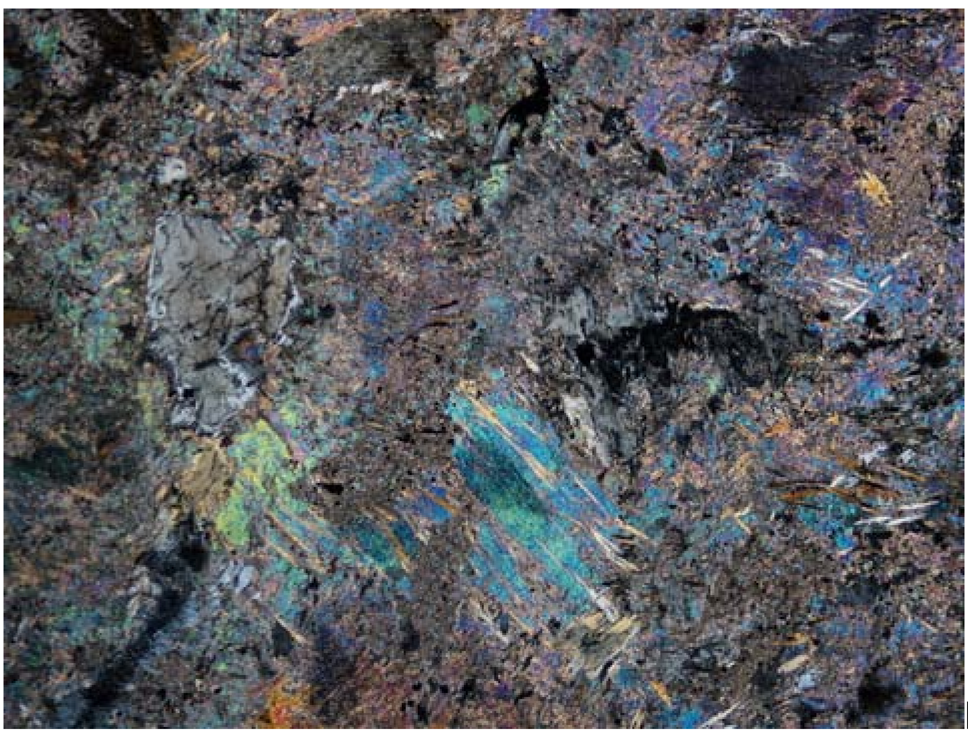
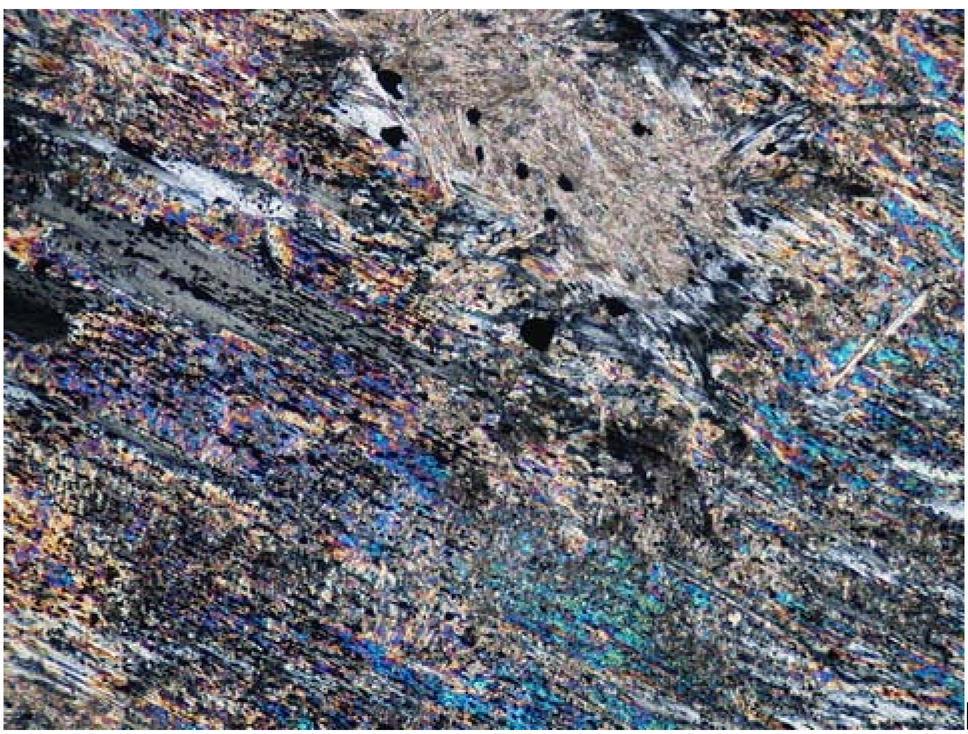


B

07 - B: A & B) Overview of the sample, showing pyroxenes variously altered to foliated aggregates of muscovite ± actinolite ± carbonate ± magnetite.
A) PPL, B) XPL, FOV = ~ 8.5 mm.

C



D

07 - B: C & D) Detailed view of the occurrence of alteration minerals. Note the cluster of carbonate (top center) and the aligned very fine grains of magnetite associated with actinolite. A) PPL, B) XPL, FOV = ~ 1.75 mm.

Sample: 08 - A

LITHOLOGY: Websterite
ALTERATION TYPE: Amphibole, carbonate

Hand Sample Description:
Grayish sample, made of a medium-grained assemblage, cut by a slightly darker, 12mm wide ?zone containing thin discontinuous veinlets of calcite (strong reaction with dilute HCl). Magnetic, no stain with sodium cobaltinitrite (no K-feldspar).

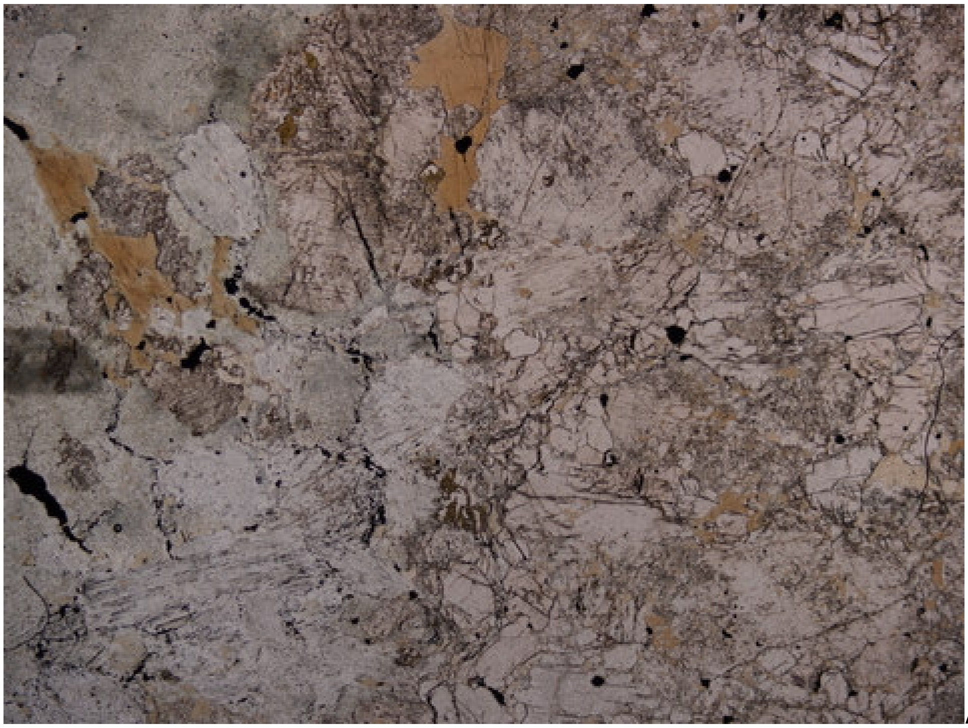
Thin Section Description:
Two zones of different mineralogies characterize the sample: Most of the sample exhibits the characteristics of a websterite, dominated by clinopyroxene and lesser orthopyroxene. Weak alteration is marked by the development of interstitial hornblende. Pyrrhotite is disseminated, unaltered, with intergrowth of chalcopyrite and pentlandite.
The sample is cut by very thin winding calcite veinlet that likely developed a wide alteration envelope where pyroxenes are extensively replaced by fine-grained feathery amphibole (?actinolite) with extremely fine magnetite lining grain boundaries and lamellae. Very fine calcite is disseminated in the alteration zone, and blebs of hornblende occur within the actinolite ± magnetite alteration assemblage. Crack filling serpentine was also observed.

MAJOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Clinopyroxene	40	Fine to medium-grained, anhedral, lamellar or with simple twin. Contains bleb-like intergrowth of hornblende and orthopyroxene. Variously altered by uralite	
Actinolite ?Uralite	25	In an altered zone of the sample, fine-grained, feathery associated with extremely fine magnetite, pseudomorphing original pyroxenes and containing blabs of hornblende	
Orthopyroxene	20	Fine- to medium-sized lamellar grains, with blebs and of hornblende and clinopyroxene, occurring as groundmass with clinopyroxene. Variously altered by uralite	*Straight extinction, low δ colors*
Hornblende	07	Fine to very fine blebs within pyroxene and interstitial masses around pyroxenes	

MINOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Pyrrhotite	03	Fine-grained, anhedral to subrounded. Occurs disseminated with laths and inclusions of chalcopyrite and / or pentlandite	
Magnetite	01	Fine to extremely fine, anhedral to elongated grains, occurring along cleavage plans, lamellae and grain boundaries of pyroxenes in the altered zone of the sample	
Calcite	01	Very fine masses within pyroxenes and elongated grains in thin discontinuous veinlets. More common in the altered zone	
Chalcopyrite	tr	Very fine bands and inclusions within pyrrhotite	
Pentlandite	tr	Very fine bands and inclusions within pyrrhotite	
Serpentine	tr	Very fine-grained crack and fracture infill	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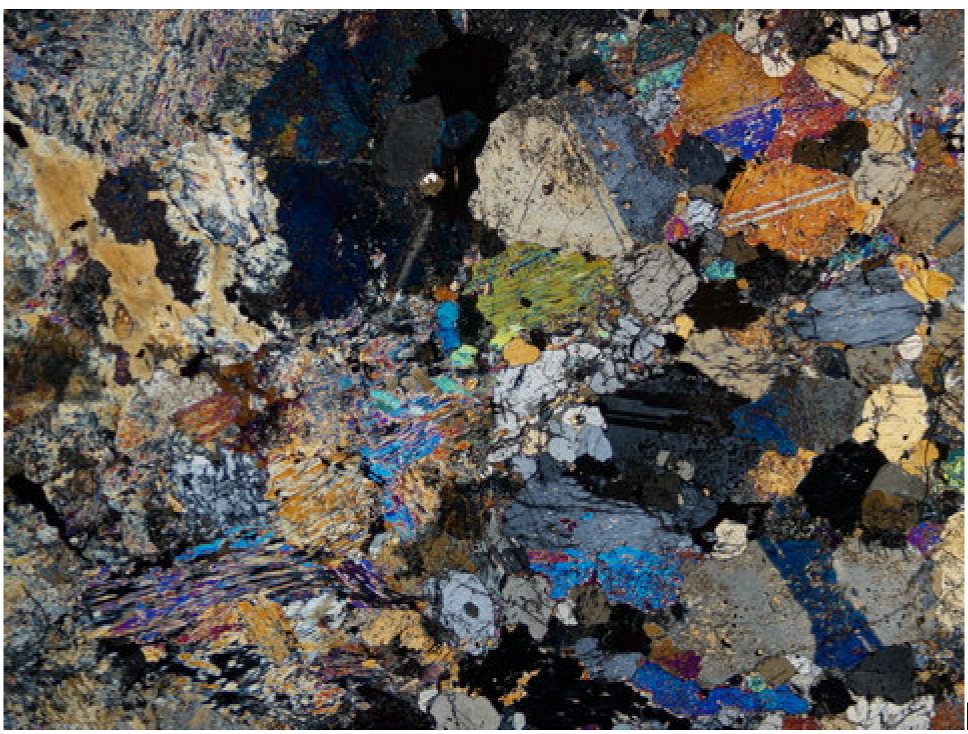

B

08 - A: A & B) Overview of the sample showing lamellar, locally twinned pyroxenes locally altered by fine foliated actinolite (left side) with interstitial hornblende.
A) PPL, B) XPL, FOV = ~ 8.5 mm.

Sample: 08 - B

LITHOLOGY: ?Websterite
ALTERATION TYPE: ?

Hand Sample Description:
Medium-grained mafic rock with local felsic patches, characterized by a very fine sulfide dissemination along grain boundaries. Trace orange-brown oxidation throughout. Magnetic, no reaction with dilute HCl, no stain with sodium cobaltinitrite (no K-feldspar).

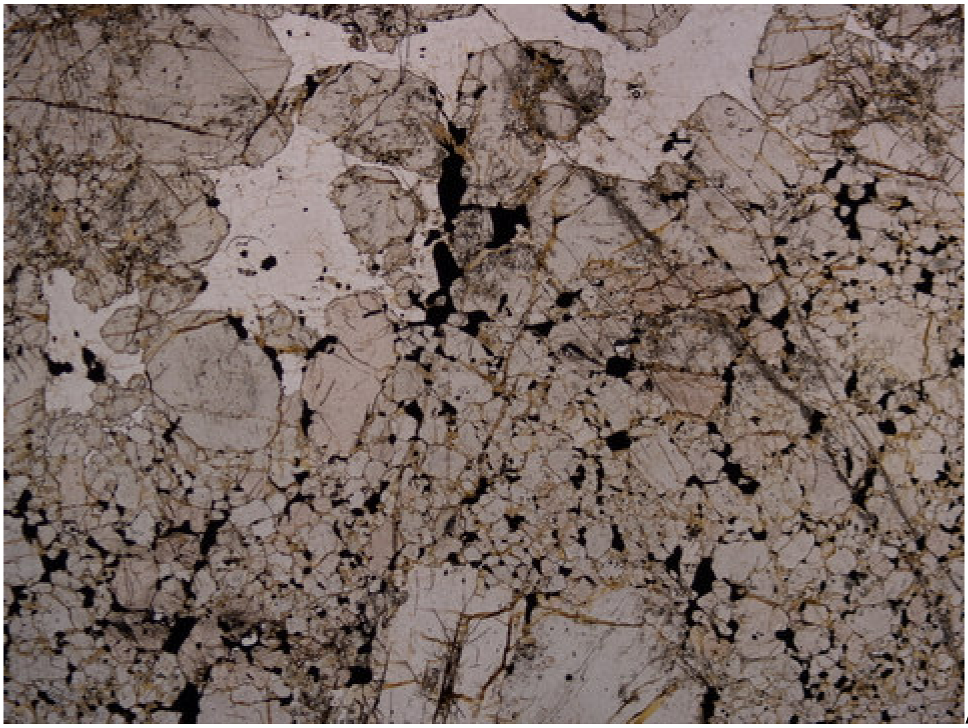
Thin Section Description:
A fine- to medium-grained, granular assemblage of clinopyroxene and lesser orthopyroxene dominate the sample with internally deformed plagioclase occurring interstitial to pyroxenes and locally filling vugs. Grain size distribution appears to be nearly bimodal, possibly due to deformation-induced the grain size reduction.
Pyroxenes are pitted by blebs of phlogopite and / or pyrrhotite, both also occurring at triple junctions or as coarser masses interstitial to pyroxenes.
Chalcopyrite and trace pentlandite commonly occur with pyrrhotite and Fe-oxides / hydroxides coat grain boundaries and cracks.
Fine clusters of titanite, masses of talc / pyrophyllite and trace very fine apatite needles were also observed.

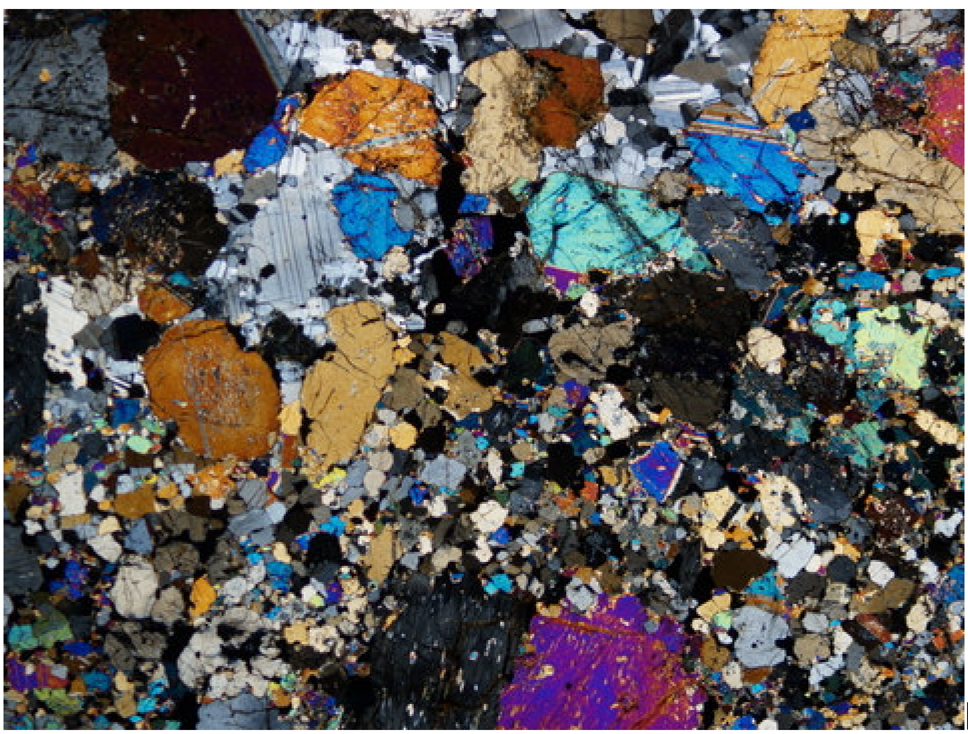
MAJOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Clinopyroxene	55	Fine to medium-grained, virtually bimodal, anhedral, lamellar or with simple twin. Commonly contains blebs of phlogopite	
Orthopyroxene	20	Fine lamellar grains, occurring within the clinopyroxene groundmass.	*Straight extinction*
Phlogopite	05	Very fine blebs within pyroxene, fine masses along cracks, fractures and triple junctions, associated with sulfides	
Pyrrhotite	05	Fine-grained, anhedral. Occurs interstitial to pyroxenes, commonly at triple junctions, intermixed with chalcopyrite. Very thin fracture infill	
Plagioclase	05	Fine- to medium-grained, with bent polysynthetic twins, occurs interstitial to pyroxenes and as vug infill.	

MINOR MINERALS

Mineral	%	Distribution & Characteristics	Optical
Titanite	01	Extremely fine-grained clusters,	
Chalcopyrite	01	Very fine bands, inclusions and intergrowth with pyrrhotite	
Talc / pyrrophyllite	01	Fine foliated masses throughout	
Fe-oxides / hydroxides	01	Very thin rim commonly coating pyrrhotite, grain boundaries and fractures	
Carbonate	tr-01	Very fine patches within pyroxene	
?Pentlandite	tr	Very fine bands and inclusions with pyrrhotite and / or chalcopyrite	
?Apatite	tr	Very fine needles disseminated within pyroxenes	


A


B

08 - B: A & B) Overview of the sample, showing the bimodal distribution of pyroxenes and the occurrence of interstitial plagioclase and sulfides.
A) PPL, B) XPL, FOV = ~ 8.5 mm.

APPENDIX 6

STATEMENT OF QUALIFICATIONS FOR MURRAY McCLAREN

Murray McClaren (P.Geo.)
Crockite Resources Ltd.,
283 Woodale Road
North Vancouver, British Columbia, Canada V7N1S6
604-986-5873(ph/fax); murraychipper@aol.com

1. I, Murray McClaren, P.Geo., am a Professional Geoscientist employed by Crockite Resources Ltd., with offices at 283 Woodale Raod, North Vancouver, B.C. Canada, V7N1S6.

2. I am a member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia, registration #24048.

3. I am a graduate of the University of British Columbia (1973 B.Sc. in geology).

4. I have been engaged in mineral exploration and development continuously since graduation in 1973, and have been involved in mineral exploration in Canada, the United States, Mexico and Portugal.

5. I am president of Crockite Resources Ltd., a geological consulting firm incorporated in the Province of British Columbia.

6. As a result of my professional registration, education and experience, I am a qualified person as defined in N.I. 43-101.

7. I am not an independent qualified person as defined by N.I. 43-101, as I sit on the Board of Directors of Pacific Cast Nickel Corp. and hold stock in the company and I am a member of the Pacific Nickel Syndicate, owner of the Big Nic Property.

8. The forgoing report on the Emory Creek Property, is based on a study of available data and my personal knowledge of the geology of the property gained during field work in the area since August 2005.

Dated at Vancouver, British Columbia, this 2nd day of February 2007.

Murray McClaren, P.Geo.

PROFESSIONAL
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