05244

ASSESSMENT REPORT
On

FN 1-119 (YC 54172-YC 54290) ,
FN 145-180 (YC 57931-YC 57966),
FN 121-125 (YC54292-YC54296),
FN 127-129 (YC 54298-YC54300),
FN 131-139 (YC54302-YC54310),
FN 181-184 (YC65129-YC65132)

115 H-10
Centered Approximately
61^0 36'N – 136^0 40' 20' W

For
D. Moreau / New Shoshoni Ventures Ltd.
Whitehorse Mining District

Work Dates
February 23-27 2009
July 8-20 2009
September 26-30 2009

By
G. Macdonald P.Geo
April 2010

Work Done By
New Shoshoni Ventures Ltd.

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1 Summary

The FN Claims consists of 184 claims located in the Aishihik Lake area of the south-central Yukon Territory. The property is accessed by float plane or helicopter charter from Whitehorse, 120 kilometers to the south.

The property consists of one contagious claim block which lie in a broad upland area, characterized by wide plateaus and valleys, rounded hills, and old lake bottom flats and terraces.

The claims overlie rocks of the Yukon Crystalline Terrane, consisting of basement schist and gneiss, amphibolite and volcanics intruded by granitic rocks of the Aishihik batholith. Tertiary and Eocene felsic to basic volcanics unconformably overlie the granitic bodies. Structurally, the Kirkland Creek fault, a major northwest orientated fault, traverses the area.

Fine-grained placer gold was discovered in early 1900's in tributaries of Kirkland Creek, draining east from a large area underlain by felsic volcanic rocks. Reconnaissance level exploration in 1989 identified highly anomalous gold values in heavy mineral concentrates collected from stream sediments on the NICK I claims, part of which are now covered by the subject claims. In 1990, airborne geophysical surveys over three sections of the NICK I claims located EM, resistivity and VLF anomalies coinciding with anomalous gold values in stream sediments. These areas were targeted for further surface work but economic conditions at that time prevented the recommended programs.

These zones formed as a result of hydrothermal activity in faults and breccia pipes during multi-stage volcanism and may represent a potential source for the fine-grained gold in the stream sediments. However, rock samples collected from several alteration zones returned only background precious metal values. Future exploration on the NICK I claims was recommended to evaluate grid geophysical and geochemical anomalies, argillic alteration zones, and airborne EM anomalies. Potential mineralized structures recognized include breccia pipes, splays and cross-faults from the Kirkland Creek fault and stockworks.

New Shoshoni Ventures Ltd under took a drill program consisting of 1,116 metres in 7 drill holes from July to September of 2008. During 2009 two holes (# 6 and #7) were logged and sampled in detail.

2 Property Description and Location

The Kirkland Creek property in the south-central Yukon on NTS Map Sheet 115H10; geographical co-ordinates 61^0 35' North and 136^0 7' East. Whitehorse, the capital of the Yukon Territory, is 120 kilometers southeast of the properties.

Helicopter and fixed-wing aircraft are the primary means of access to the property. Charters are available from Whitehorse, Haines Junction, and Carmacks. Small lakes located in the southwest and southeast southwestern sections of the property are adequate for float or ski equipped aircraft. There is a winter road to the property from the Aishihik Lake Road, which was used to service placer mining operations in the 1980's.

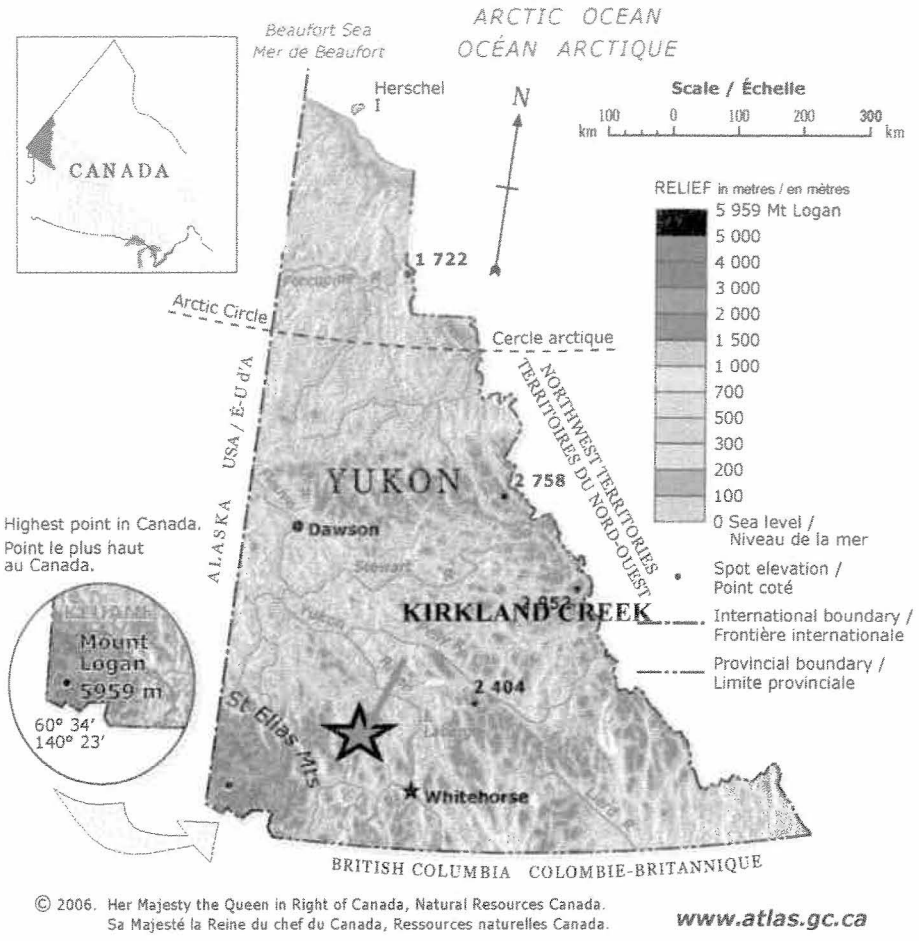
The properties lie in a broad upland area, characterized by wide plateaus and valleys, rounded hills, old lake-bottom flats and terraces. Kirkland Creek flows on the east edge of the Property. The central and northern portion of the FN Claims property is above treeline, consisting of long interconnected ridges and spurs rising up to 1,525 metres; separated by wide flat-bottomed valleys. The ridge tops are broad and grassy with few rocky sections. Ridge walls are steep and the southern and westerly facing slopes are grassy with sections of alder and rock talus. Spruce and pine forest is limited to lower elevations and valley bottoms which are typically swampy. Lake Terrace Creek flows to the east through the central section of the claim block.

This region has central interior Climate characterized by long cold winters and dry warm summers. Temperatures average 15 degrees Celsius in summer and range from 0 to -50 degrees Celsius in winter. Annual precipitation averages 30 centimetres and with packs up to 50 centimeters.

Table 1, Claim Status 2009

Name	Tag Number	Renew Date
FN 1-119	YC54172 – YC54290	October 23, 2010
FN 121-125	YC54292 - YC54296	October 23, 2010
FN 127-129	YC54298 - YC54300	October 23, 2010
FN 131-139	YC54302 - YC54310	October 23, 2010
FN 145-180	YC 57931-YC 57966	January 26, 2018
FN 181-184	YC 65129- YC 65132	June 18, 2017

Figure 1 Location of Property



www.atlas.gc.ca

3 Exploration History

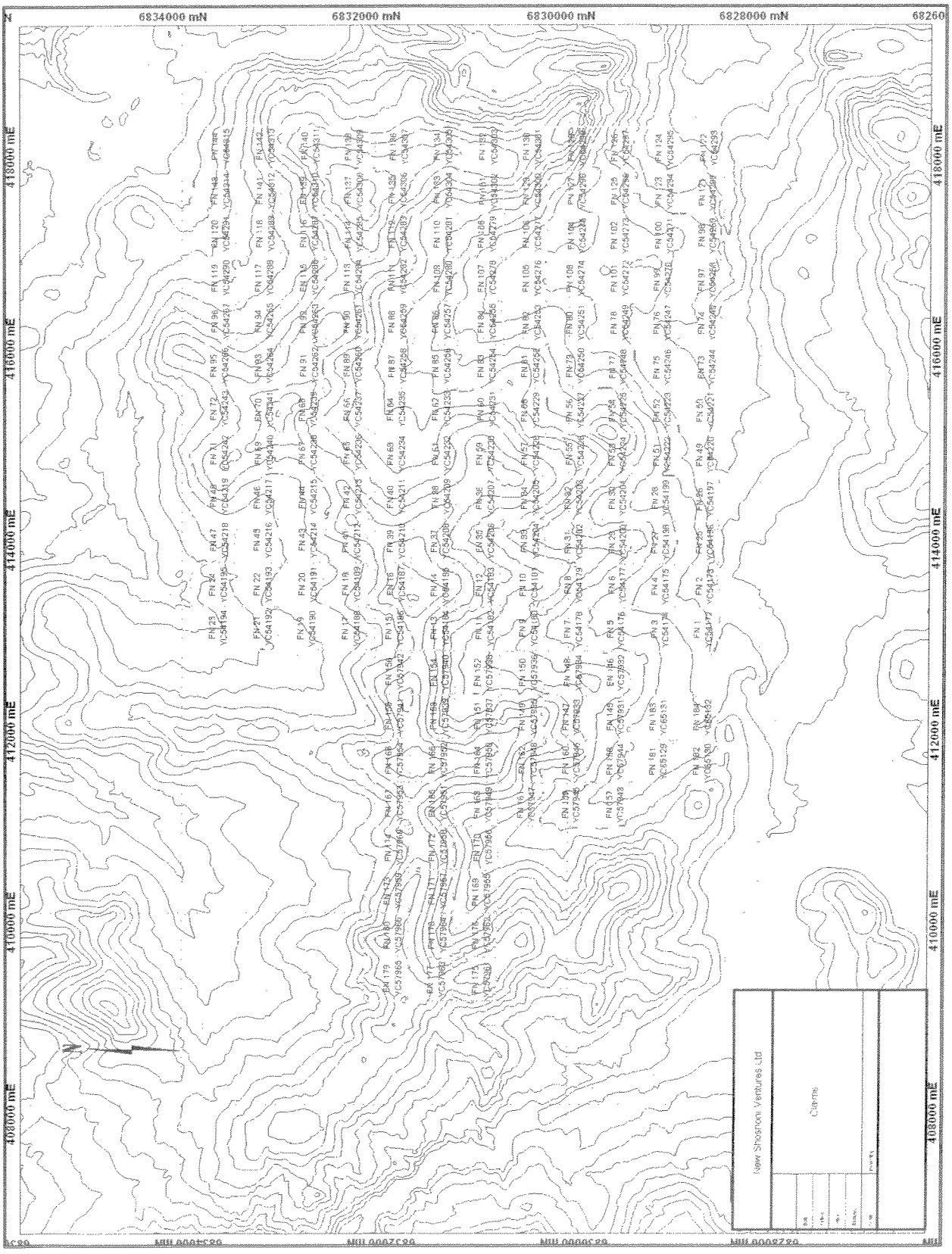
The Aishihik Lake – Kirkland Creek area has long history of intermittent exploration dating from before the 1896 discovery of rich placer gold deposits in the Klondyke, as prospectors searching for placer gold first passed through the Kirkland Creek region during the 1880's. Subsequently, the Dalton Trail, which provided access from the coast at Haines, Alaska to the Klondyke, partly followed along Kirkland Creek and the presence of fine placer gold in creeks draining into Kirkland Creek form the area now covered by the property was noted during the initial Klondyke gold rush stampede.

Prospectors traversed the general Aishihik region at various times, exploring for both placer gold occurrences and lode deposits of copper and/or gold-silver-lead-zinc mineralization. Numerous prospects have been located during the various exploration surges, including gold-copper deposits near Hopkins and Giltana Lakes and gold-silver-deposits to the north west at Mt. Nansen. The area covered by the property was traversed by prospectors working for major mining companies on regional copper-molybdenum porphyry and uranium exploration projects during the 1970's. At this time, several claim groups were explored on and around the property, by companies such as Noranda Exploration and Mitsubishi who tested for "porphyry" copper deposits.

In 1987-1988 a regional stream sediment geochemical survey was performed over the Aishihik Lake map sheet funded by Yukon Territorial Government and the Department of Energy, Mines and Resources. A large area underlain by Tertiary volcanic rocks produced anomalous gold, arsenic, antimony and mercury values. The Nick claims were staked as a result in 1989 and explored by Golden Hemlock Exploration Ltd./Golden Quail Exploration Ltd.

Gold exploration in the 1980's focused on Cretaceous to Tertiary volcanic events in the south-central Yukon. Several prospects were staked in the Kirkland Creek area but no significant results were reported. Placer gold testing was performed on three creeks draining easterly into Kirkland Creek. Fine-grained gold was recovered in sub-economic amounts from the test pits.

Figure 2 Location of Claims



3.1 Golden Quail Resources Ltd.

1989

Golden Quail undertook reconnaissance level exploration work in August and September 1989 consisting of 56 soil and 103 stream sediments, 24 rock, and 18 heavy metal samples The heavy mineral concentrates collected from tributaries of Lake Terrace Creeks recorded gold values from 327 to 24,300 ppb (.Lambert 1989). The presence of very fine grained gold was noted during the sampling program.

3.2 Golden Hemlock Exploration Ltd. 1990

In 1990 Golden Hemlock undertook an airborne geophysical survey over the property. A Total of 200 line kilometres of electromagnetic, magnetic, and VLF survey were flown. As a result 15 airborne anomalies were identified with several coinciding with high gold values in stream sediment samples which were targeted for further surface work. A 26 line kilometre grid was established trending 155^0 with 100 metre line spacing to facilitate soil sampling, VLF and magnetometer survey and geological mapping.

3.3 New Shoshoni Ventures Ltd Exploration Programs

3.3.1 2007-2008 Exploration

During 2007 a survey grid cut to I.P. standards was completed covering claims FN 7, 9, 11, 13, 15, 147-56, 159-180. The grid consists of a 2.3 km baseline with cross lines of varying lengths set at 100 meter intervals at right angles to the base line. The lines were chained and lath pickets set at 25 meter intervals with the station coordinates marked on them. A total of 85 km of grid was established. The crew worked from a base camp with helicopter support. The grid was established by Coureur Des Bois of Whitehorse as contractor.

Wolcott and Associates were contracted to survey the grid with I.P. geophysical methods. The survey crew was delayed by unseasonable weather at other job sites and commenced this contract on September 23. Less then 50% of the survey was completed before the onset of winter weather terminated the program mid October.

During 2008 New Shoshoni conducted a program of diamond drilling designed to test geophysical/geochemical anomalies coincident with a large silicified and clay altered brecciation zone. Four holes were initially collared and subsequently abandoned before reaching the objective due to problems encountered by the drill in penetrating the clay alteration zone. Three additional holes were drilled to test other targets, and for geological purposes. No anomalous gold or silver results were obtained. The previous year's camp was utilized in 2008.

4 GEOLOGICAL SETTING

4.1 Regional Geology

The Kirkland Creek area lies in the Yukon Crystalline Terrane, an assemblage of Yukon Group schist, gneiss, and amphibolite; Triassic andesite to basalt flows and tuff breccia; intruded by granitic batholiths. Eocene volcanic rocks unconformably overlie the basement units.

The Aishihik Batholith underlies much of the district. Triassic to Lower Jurassic in age, the intrusive body ranges in composition from dark grey granodiorite to pink quartz monzonite and porphyritic quartz monzonite.

Tertiary and Eocene volcanic rocks unconformably overlie the granitic bodies. On the property the volcanics consist primarily of felsic tuffs, flows and breccias which weather white, yellow or red in colour. Dark green mafic volcanic plugs and dykes cut the felsic units. Structurally a major northwest trending fault traverses the property. Other prominent features include east-west faults along Lake Terrace Creeks, and northwesterly trending faults along the Black Lake valley.

Cretaceous to Tertiary volcanic rocks host lode gold deposits in the Dawson Range north of the property and in the Wheaton District south of the Aishihik area. Lode mineralization consists of epithermal to mesothermal gold bearing calcite-quartz-chalcedony vein systems in faults and fracture zones associated with felsic intrusives. In the Wheaton Valley ring dykes and fault zones developed during caldera collapse. In the Dawson Range gold

mineralization occurs in quartz veins and fractures formed during intrusion of quartz feldspar porphyry and breccia bodies. Alteration zones vary from narrow seams of clay gouge along the margins of individual quartz veins to wide areas of propylitic and argillic alteration around intrusive breccias. Sericite and pyrite are common accessory minerals.

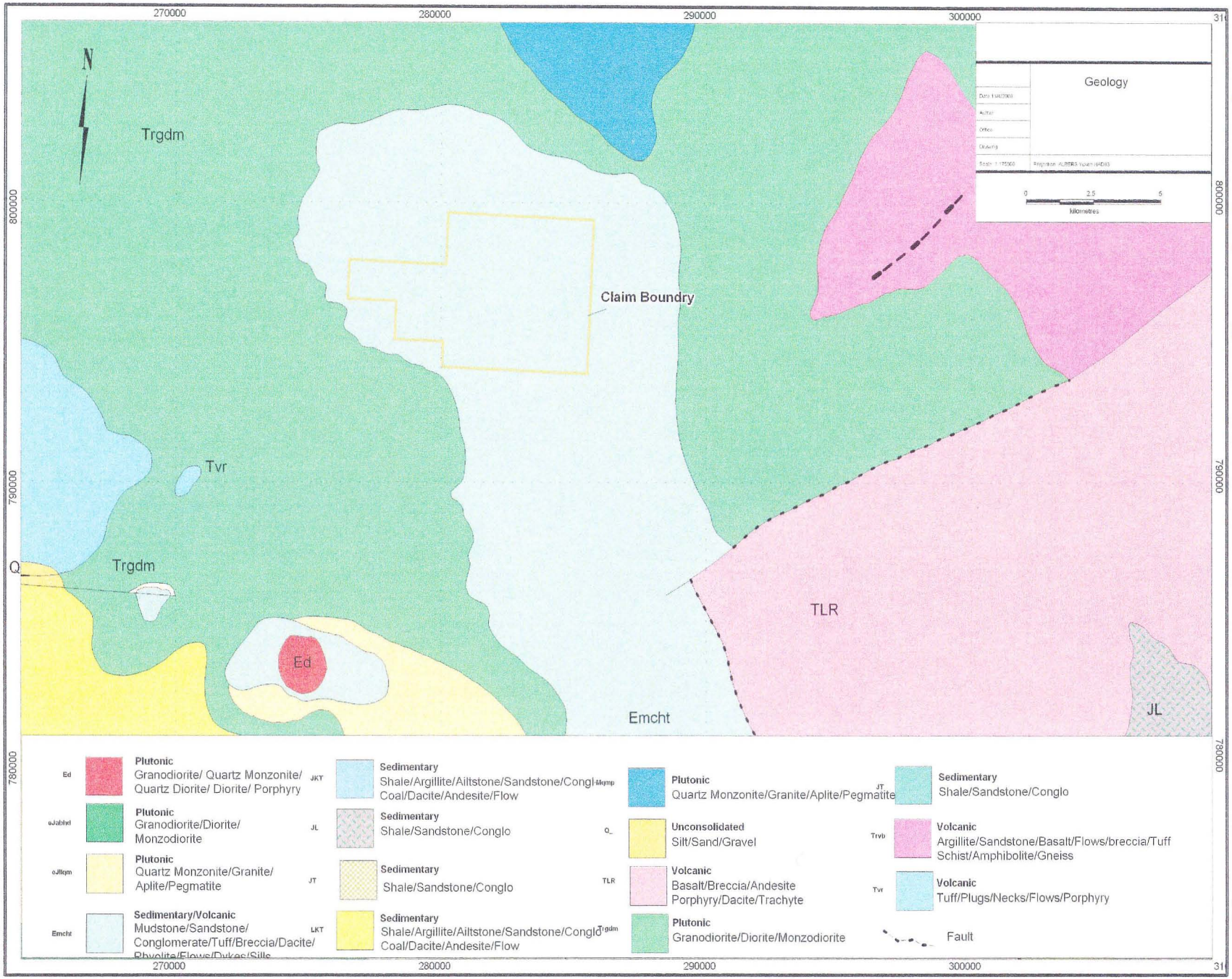


Figure 3 Property Geology

4.2 Property Geology

The property is mainly underlain by felsic Tertiary volcanic units of the Selkirk Volcanics. A few dykes and sills of basic volcanic rock intrude the sequence. The volcanics are flat-lying. No granitic or older volcanic rocks are seen but intrusives of the Aishihik Batholith probably underlie the western margin of claim block. Outcrop locally is limited to a few steep slopes and high ridges, Prominent bedrock usually consists of red to light brown highly silicified felsic breccia. Recessive areas contain talus of white to yellow crystal tuff and breccia. The volcanics are rhyolitic to dacitic in composition, containing yellow feldspar phenocrysts. Andesite porphyry dykes and mafic volcanic dykes and sills intrude the felsic volcanics.

Argillic alteration zones containing banded coliform texture jasperoid occur along linear depressions trending N40^0-65^{0}W. The alteration zones were formed by hydrothermal circulation through faults and breccia pipes in the volcanic pile . They occasionally contain drusy quartz-chalcedony veinlets and fluorite but no sulphide minerals were evident.

5 2009 Exploration Program

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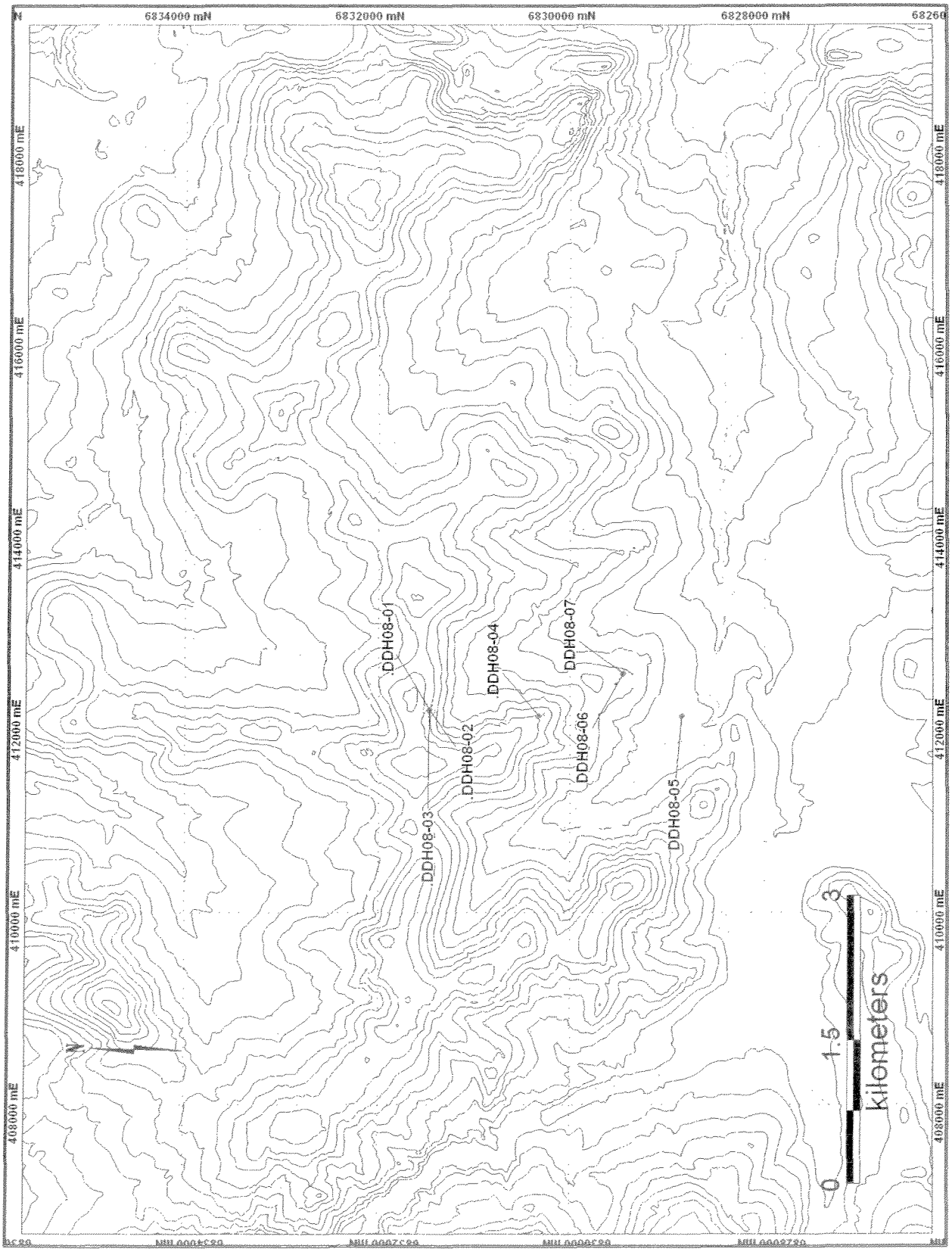
During the 2008 exploration program, two holes (DDH 2008-06 and DDH 2008-07) were drilled for geological purposes. These holes were proximal to the geophysical/geochemical anomalies planned for testing by DDH 2008-01 to DDH 2008-05, all of which were abandoned prior to testing their targets due to drill penetration problems caused by epithermal clay alteration minerals. During 2009 DDH 2008-06 was logged in detail, with samples selected for lab and geochemical analysis. Thin sections were used to identify various rock and mineral types. The samples consisted of volcanic and volcaniclastic lithologies, including volcanic glasses, aphanitic rocks of basaltic and andesitic composition and volcanistic intermediate to mafic ash to lapilli tuffs. Supergene green atacamite is present in 5 of these samples, and is present in two other holes (DDH 2008-05 and DDH 2008-07). Three samples were submitted for x-ray diffraction analysis and montmorillonite was identified as the primary clay mineral. A series of 41 samples was submitted for geochemical analysis for 32 elements at AcmeLabs (Vancouver B.C.) by their R200 method. Economic elements (Au/Cu/Ag/Pb/Zn) were not present in anomalous amounts. Samples enriched in Fe coincide with areas of hematite cemented breccia zones, and

elevated values of Ba and Mn are occasionally present. Lab reports summarizing the results are included in the Appendices of this report. A site visit was included in the 2009 project.

Table 2, Drill Hole Summary Table.

Drill Hole	Location	Dip	Depth	Dates Drilled
DDH08-06	412500/6829450	-90W	245.6m	September 5-8

Figure 4 Drill Hole Locations



6 Conclusions and Recommendations

The 2009 exploration work has provided a geological framework for the property and an understanding of alteration lithologies. Additional exploration is recommended for the FN claims. The knowledge of drill mud technology has developed a drill method to allow for penetration of the clay alteration cap in order to test the primary target area. A three hole drill program totaling 3000 meters is recommended.

Proposed Budget

Geophysics	$50,000
Drilling 3 Drill Holes	$750,000
Geology and engineering	$100,000
Total	**$900,000**

7 References

Adamson, R.S., 1989, Summary Report on the Nick Claim Groups, Kirkland Creek, Yukon: unpublished company report for Long Lake Syndicate.

Carlson G. 1987 Geology of Mt. Nansen (115 1/3) and Stoddart Creek (115 1/6) map areas, Dawson Range, Central Yukon. INAC Yukon Region Open File 1987-2.

Davidson G.S., 1991, Exploration Report on the Kirkland Creek Property Whitehorse Mining,District Lat. 61 30'N, Long. 13630W NTS 115 H7,8,9,10 for Golden Hemlock Exploration Ltd.

Fairbank, B. et al 1977: Combined Geological and Geophysical Report on the TAH 1-42 Claims, for Noranda Exploration Co,

Fraser D.C. 1978. The multicoil II airborne electromacrnetic system. Geophysics Vol. 44 No 8 pp1367-1394.

Lambert E., 1989 Geochemical Report in the Nick 1 Claim Group, Kirkland Creek, Yukon, for Gloden Quail Resources Ltd. Yukon Assessment report 092772

Kikuchi, T. 1970: Geological and Geochemical Report on KL Mineral Claims, for Mitsubishi Metal Mining Co. Ltd.

MacDonald, G.C. 1980: Diamond Drilling Assessment Report, TAH 1-42 Mineral Claims, for Noranda Exploration Co.

MacDonald, G.C. 1989: Interim Report Summarizing Geological, Geophysical and Geochemical Information on the NICK Claims, for Golden Quail Resources.

MacDonald, G.C. 1990 Summary Report on the Kirkland Creek Property, for Golden Hemlock Exploration Ltd.

McDonald B.W.D. 1990 Geology and genesis of the Mount Skukum epithermal gold-silver deposits. Southwestern Yukon Territory. Exploration and Geological Services Division, Yukon Region Bulletin 2.

Montgomery, J.H., 1981, Report on the Kirkland Creek Gold Placer Prospect, YukonTerritory; unpublished compa

Cathro, R.J. 1971 : Report on Diamond Drilling on KL Mineral Claims, for Mitsubishi Metal Mining Co. Ltd.

Pritchard, R.A. 1990: Dighem III Survey for Golden Quail Resources Ltd., Carmacks, Yukon.ny report for Kirkland Creek Syndicate.

8 Certificates

I, GLEN MACDONALD, of 905-1600 M Beach Avenue, Vancouver, BC, hereby certify that:

1. I am a graduate of the University of British Columbia with degrees in Economics (B.A., 1971) and Geology (B.Sc., 1973);
2. I have practiced my profession as Geologist since graduation;
3. I have practiced Geology as an Independent Consulting Geologist since 1983;
4. I am a member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta (No.36214);
5. I am a member of the Association of Professional Engineers and Geoscientists of the Province of British Columbia (no.20464)
6. I supervised the exploration program reported here in.

Dated at Vancouver, BC, April 19th 2010

Glen Macdonald, P.Geol., P.Geo.

Appendix 1
Statement of Costs

STATEMENT OF COSTS
"FN" CLAIM 2009

Charter Aircraft (Capital Helicopters)			$ 2,475.69
Commercial Airfares			
(i)	Air Canada	$ 3,425.80	
(ii)	Air North	815.15	
		4,240.95	4,240.95
Labour			3,500.00
Norcan Rental			1,313.11
Vancouver GeoTech Lab			2,311.58
Hotel (Goldrush Inn)			
(i)	G. Macdonald	538.77	
(ii)	B. Krause	1,126.45	
(iii)	B. Krause	866.25	
		2,531.47	2,531.47
Professional Fees			
(i)	B. Krause	2,751.45	
(ii)	B. Krause	1,312.50	
(iii)	B. Krause	6,484.66	
(iv)	B. Krause	2,625.00	
		13,171.61	13,171.61
Acme Analytical Assay			
(i)		1,655.96	
(ii)		457.03	
(iii)		207.64	
(iv)		2,142.00	
		4,462.63	4,462.63
TOTAL			**$ 34,007.04**

Appendix 2
Acme Lab Certificate

Acme Analytical Laboratories (Vancouver) Ltd.
1020 Cordova St. East Vancouver BC V6A 4A3 Canada
Phone (604) 253-3158 Fax (604) 253-1716
www.acmelab.com

Client: **695809 B.C. Ltd.**
520 - 700 W. Pender St.
Vancouver BC V6C 1G8 Canada

Submitted By: Bob Krause
Receiving Lab: Canada-Vancouver
Received: July 22, 2009
Report Date: August 05, 2009
Page: 1 of 3

CERTIFICATE OF ANALYSIS VAN09003099.1

CLIENT JOB INFORMATION

Project: None Given
Shipment ID:
P.O. Number
Number of Samples: 41

SAMPLE DISPOSAL

STOR-PLP Store After 90 days Invoice for Storage
DISP-RJT Dispose of Reject After 90 days

Acme does not accept responsibility for samples left at the laboratory after 90 days without prior written instructions for sample storage or return.

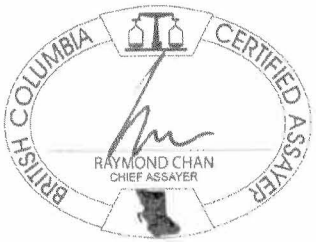
SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Method Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
R200	41	Crush split and pulverize drill core to 200 mesh			VAN
3B	41	Fire assay fusion Au by ICP-ES	30	Completed	VAN
1D	41	1:1:1 Aqua Regia digestion ICP-ES analysis	0.5	Completed	VAN

ADDITIONAL COMMENTS

Invoice To: 695809 B.C. Ltd.
520 - 700 W. Pender St.
Vancouver BC V6C 1G8
Canada

CC: Glen MacDonald



This report supersedes all previous preliminary and final reports with this file number dated prior to the date on this certificate. Signature indicates final approval; preliminary reports are unsigned and should be used for reference only.
All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of analysis only.
"*" asterisk indicates that an analytical result could not be provided due to unusually high levels of interference from other elements.

Acme Analytical Laboratories (Vancouver) Ltd.
1020 Cordova St. East Vancouver BC V6A 4A3 Canada
Phone (604) 253-3158 Fax (604) 253-1716
www.acmelab.com

Client: **695809 B.C. Ltd.**
520 - 700 W. Pender St.
Vancouver BC V6C 1G8 Canada

Project: None Given
Report Date: August 05, 2009

CERTIFICATE OF ANALYSIS VAN09003099.1

	Method	WGHT	3B	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D
	Analyte	Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V
	Unit	kg	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
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Acme Analytical Laboratories (Vancouver) Ltd.
1020 Cordova St. East Vancouver BC V6A 4A3 Canada
Phone (604) 253-3158 Fax (604) 253-1716
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Client: **695809 B.C. Ltd.**
520 - 700 W. Pender St.
Vancouver BC V6C 1G8 Canada

Project: None Given
Report Date: August 05, 2009

CERTIFICATE OF ANALYSIS VAN09003099.1

	Method	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D
	Analyte	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S
	Unit	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%
	MDL	0.01	0.001	1	1	0.01	1	0.01	20	0.01	0.01	0.01	2	0.05
780101	Drill Core	0.59	0.137	37	2	0.42	124	0.42	<20	0.55	0.11	0.17	<2	<0.05
780102	Drill Core	0.65	0.143	38	2	0.40	105	0.42	<20	0.47	0.10	0.14	<2	<0.05
780103	Drill Core	0.93	0.146	38	2	0.34	93	0.44	<20	0.49	0.11	0.14	<2	<0.05
780104	Drill Core	0.81	0.131	32	3	0.45	102	0.41	<20	0.59	0.11	0.13	<2	<0.05
780105	Drill Core	0.83	0.145	36	2	0.43	100	0.42	<20	0.62	0.10	0.12	<2	<0.05
780106	Drill Core	0.68	0.152	37	2	0.39	104	0.40	<20	0.56	0.10	0.12	<2	<0.05
780107A	Drill Core	0.66	0.153	37	2	0.39	114	0.39	<20	0.65	0.12	0.14	<2	<0.05
780107B	Drill Core	0.66	0.155	37	2	0.34	88	0.38	<20	0.60	0.09	0.11	<2	<0.05
780108	Drill Core	0.93	0.152	37	2	0.38	96	0.38	<20	0.70	0.09	0.11	<2	<0.05
780109	Drill Core	0.79	0.151	37	2	0.43	93	0.36	<20	0.66	0.07	0.10	<2	<0.05
780110A	Drill Core	0.99	0.139	36	1	0.36	666	0.28	<20	0.64	0.09	0.16	<2	<0.05
780110B	Drill Core	1.51	0.082	31	3	0.11	201	0.09	<20	0.45	0.06	0.13	<2	<0.05
780111	Drill Core	2.04	0.108	28	26	0.32	548	0.06	<20	1.89	0.17	0.17	<2	<0.05
780112	Drill Core	0.04	0.005	42	3	0.01	121	0.03	<20	0.21	0.07	0.13	<2	<0.05
780113	Drill Core	0.03	0.002	42	2	<0.01	53	0.02	<20	0.16	0.06	0.10	<2	<0.05
780114	Drill Core	0.08	0.002	45	2	<0.01	56	0.02	<20	0.17	0.06	0.10	<2	<0.05
780115	Drill Core	0.07	0.002	61	2	<0.01	51	0.03	<20	0.18	0.05	0.09	<2	<0.05
780116	Drill Core	0.07	0.002	71	2	0.02	71	0.02	<20	0.26	0.05	0.09	<2	<0.05
780117	Drill Core	0.18	0.001	50	2	<0.01	39	0.02	<20	0.18	0.05	0.09	<2	<0.05
780118	Drill Core	0.18	0.001	53	2	<0.01	38	0.02	<20	0.15	0.04	0.08	<2	<0.05
780119	Drill Core	0.27	0.001	59	2	0.01	46	0.02	<20	0.19	0.05	0.10	<2	<0.05
780120	Drill Core	0.40	0.001	59	1	<0.01	41	0.02	<20	0.17	0.04	0.09	<2	<0.05
780121	Drill Core	0.05	0.002	60	1	<0.01	43	0.02	<20	0.18	0.04	0.10	<2	<0.05
780122	Drill Core	0.14	0.002	58	2	<0.01	38	0.02	<20	0.18	0.04	0.10	<2	<0.05
780123	Drill Core	0.60	0.002	56	1	<0.01	33	0.02	<20	0.17	0.05	0.10	<2	<0.05
780124	Drill Core	0.19	0.002	61	2	<0.01	33	0.03	<20	0.17	0.05	0.10	<2	<0.05
780125	Drill Core	0.13	0.004	59	2	<0.01	32	0.03	<20	0.17	0.05	0.09	<2	<0.05
780126	Drill Core	0.08	0.005	79	4	<0.01	25	0.02	<20	0.17	0.05	0.09	<2	<0.05
780127A	Drill Core	0.12	0.003	61	3	<0.01	24	0.04	<20	0.22	0.07	0.11	<2	<0.05
780127B	Drill Core	0.19	0.002	53	2	<0.01	23	0.03	<20	0.25	0.07	0.12	<2	<0.05

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Report Date: August 05, 2009

CERTIFICATE OF ANALYSIS VAN09003099.1

	Method	WGHT	3B	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D
	Analyte	Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V
	Unit	kg	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.01	2	1	1	3	1	0.3	1	1	2	0.01	2	8	2	2	1	0.5	3	3	1
780128	Drill Core		10	2	3	<3	144	<0.3	<1	4	976	3.96	4	<8	<2	6	26	<0.5	<3	<3	10
780129	Drill Core		3	3	4	3	144	<0.3	<1	5	1131	4.37	3	<8	<2	7	31	<0.5	<3	<3	11
780130	Drill Core		<2	2	3	<3	137	<0.3	<1	4	1076	4.24	<2	<8	<2	7	30	<0.5	<3	<3	11
780131	Drill Core		<2	4	6	<3	142	<0.3	<1	4	1124	4.54	<2	<8	<2	9	35	<0.5	<3	<3	11
780132	Drill Core		<2	2	6	5	133	<0.3	<1	5	1014	4.16	<2	<8	<2	9	34	<0.5	<3	<3	10
780133	Drill Core		<2	3	5	8	150	<0.3	<1	5	560	4.50	3	<8	<2	10	32	<0.5	<3	<3	11
780134	Drill Core		<2	2	5	7	128	<0.3	<1	4	1141	3.95	4	<8	<2	8	24	<0.5	<3	<3	10
780135	Drill Core		<2	<1	4	17	142	<0.3	<1	3	1359	3.63	3	<8	<2	10	54	<0.5	<3	<3	9
780136	Drill Core		<2	<1	6	13	126	<0.3	<1	5	1376	2.80	<2	<8	<2	8	68	<0.5	<3	<3	14
780137	Drill Core		<2	<1	5	17	140	<0.3	<1	4	768	3.07	4	<8	<2	10	86	<0.5	<3	<3	10
780138	Drill Core		<2	<1	5	11	143	<0.3	<1	4	1410	2.88	7	<8	<2	8	48	<0.5	<3	<3	8

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Project: None Given
Report Date: August 05, 2009

CERTIFICATE OF ANALYSIS VAN09003099.1

	Method	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D
	Analyte	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S
	Unit	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%
	MDL	0.01	0.001	1	1	0.01	1	0.01	20	0.01	0.01	0.01	2	0.05
780128	Drill Core	0.49	0.156	41	1	0.18	126	0.16	<20	0.64	0.06	0.13	<2	<0.05
780129	Drill Core	0.49	0.161	44	<1	0.16	87	0.26	<20	0.72	0.06	0.11	<2	<0.05
780130	Drill Core	0.86	0.156	41	<1	0.12	108	0.27	<20	0.58	0.06	0.09	<2	<0.05
780131	Drill Core	0.53	0.171	45	<1	0.11	157	0.33	<20	0.71	0.07	0.10	<2	<0.05
780132	Drill Core	0.53	0.168	44	<1	0.12	175	0.28	<20	0.68	0.06	0.09	<2	<0.05
780133	Drill Core	0.53	0.172	46	<1	0.11	157	0.35	<20	0.73	0.06	0.12	<2	<0.05
780134	Drill Core	0.42	0.141	42	<1	0.10	291	0.28	<20	0.54	0.05	0.17	<2	<0.05
780135	Drill Core	0.76	0.136	48	<1	0.23	406	0.10	<20	1.07	0.05	0.26	<2	<0.05
780136	Drill Core	1.81	0.129	40	1	0.31	127	0.05	<20	1.13	0.12	0.22	<2	<0.05
780137	Drill Core	1.28	0.111	44	1	0.27	511	0.04	<20	1.21	0.07	0.24	<2	<0.05
780138	Drill Core	1.45	0.120	41	<1	0.21	96	0.10	<20	0.55	0.05	0.20	<2	<0.05

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Vancouver BC V6C 1G8 Canada

Project: None Given
Report Date: August 05, 2009

QUALITY CONTROL REPORT VAN09003099.1

	Method	WGHT	3B	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D
	Analyte	Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V
	Unit	kg	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.01	2	1	1	3	1	0.3	1	1	2	0.01	2	8	2	2	1	0.5	3	3	1
Pulp Duplicates																					
780101	Drill Core		<2	3	5	9	160	<0.3	<1	4	927	4.03	2	<8	<2	6	20	<0.5	<3	<3	12
REP 780101	QC			3	6	17	164	<0.3	<1	4	940	4.09	4	<8	<2	6	21	<0.5	<3	<3	12
780112	Drill Core		<2	1	<1	20	82	<0.3	<1	<1	536	0.90	2	<8	<2	10	5	<0.5	<3	<3	<1
REP 780112	QC		<2																		
780133	Drill Core		<2	3	5	8	150	<0.3	<1	5	560	4.50	3	<8	<2	10	32	<0.5	<3	<3	11
REP 780133	QC		<2																		
780135	Drill Core		<2	<1	4	17	142	<0.3	<1	3	1359	3.63	3	<8	<2	10	54	<0.5	<3	<3	9
REP 780135	QC			<1	4	16	146	<0.3	<1	4	1434	3.72	3	<8	<2	9	56	<0.5	<3	<3	9
Core Reject Duplicates																					
780111	Drill Core		<2	<1	12	12	105	<0.3	11	9	865	3.28	3	<8	<2	5	90	<0.5	<3	<3	48
DUP 780111	QC		2	<1	11	9	102	<0.3	10	9	878	3.12	3	<8	<2	5	91	<0.5	<3	<3	44
Reference Materials																					
STD DS7	Standard			20	105	64	411	0.9	53	8	646	2.44	50	<8	<2	5	80	5.6	3	6	82
STD DS7	Standard			23	110	74	421	1.0	57	9	682	2.51	53	<8	<2	5	86	6.0	4	5	89
STD OREAS45PA	Standard			<1	633	15	127	0.6	308	107	1165	17.05	<2	<8	<2	9	14	<0.5	<3	<3	227
STD OREAS45PA	Standard			<1	655	20	140	0.3	325	115	1194	16.86	4	<8	<2	8	15	<0.5	<3	<3	232
STD OXE56	Standard		605																		
STD OXE56	Standard		590																		
STD OXH55	Standard		1270																		
STD OXH55	Standard		1323																		
STD OXE56 Expected			611																		
STD OXH55 Expected			1282																		
STD DS7 Expected				21	109	71	411	0.9	56	10	627	2.39	48	5	0.07	4	68	6.4	5	5	84
STD OREAS45PA Expected				0.9	646	19	122	0.3	281	104	1085	16.559	4.2	1.2	0.049	6.5	14	0.09	0.38	0.18	209
BLK	Blank			<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<8	<2	<2	<1	<0.5	<3	<3	<1
BLK	Blank		<2																		
BLK	Blank		<2																		
BLK	Blank		<2																		

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Project: None Given
Report Date: August 05, 2009

QUALITY CONTROL REPORT VAN09003099.1

	Method	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D
	Analyte	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S
	Unit	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%
	MDL	0.01	0.001	1	1	0.01	1	0.01	20	0.01	0.01	0.01	2	0.05
Pulp Duplicates														
780101	Drill Core	0.59	0.137	37	2	0.42	124	0.42	<20	0.55	0.11	0.17	<2	<0.05
REP 780101	QC	0.60	0.141	38	3	0.42	125	0.42	<20	0.55	0.11	0.17	<2	<0.05
780112	Drill Core	0.04	0.005	42	3	0.01	121	0.03	<20	0.21	0.07	0.13	<2	<0.05
REP 780112	QC													
780133	Drill Core	0.53	0.172	46	<1	0.11	157	0.35	<20	0.73	0.06	0.12	<2	<0.05
REP 780133	QC													
780135	Drill Core	0.76	0.136	48	<1	0.23	406	0.10	<20	1.07	0.05	0.26	<2	<0.05
REP 780135	QC	0.79	0.141	50	<1	0.23	418	0.10	<20	1.11	0.05	0.27	<2	<0.05
Core Reject Duplicates														
780111	Drill Core	2.04	0.108	28	26	0.32	548	0.06	<20	1.89	0.17	0.17	<2	<0.05
DUP 780111	QC	1.98	0.106	28	24	0.28	525	0.05	<20	1.67	0.16	0.14	<2	<0.05
Reference Materials														
STD DS7	Standard	0.98	0.075	13	219	1.07	432	0.12	38	1.10	0.11	0.49	3	0.19
STD DS7	Standard	1.04	0.078	15	227	1.11	452	0.13	36	1.16	0.11	0.50	<2	0.20
STD OREAS45PA	Standard	0.25	0.036	16	866	0.10	189	0.13	<20	3.53	<0.01	0.07	<2	<0.05
STD OREAS45PA	Standard	0.26	0.037	20	905	0.10	194	0.15	<20	3.62	0.01	0.08	<2	<0.05
STD OXE56	Standard													
STD OXE56	Standard													
STD OXH55	Standard													
STD OXH55	Standard													
STD OXE56 Expected														
STD OXH55 Expected														
STD DS7 Expected		0.93	0.08	13	179	1.05	370	0.124	39	0.959	0.073	0.44	4	0.19
STD OREAS45PA Expected		0.222	0.034	13.7	873	0.1125	190	0.13		3.23	0.011	0.0665	1.1	0.03
BLK	Blank	<0.01	<0.001	<1	<1	<0.01	<1	<0.01	<20	<0.01	<0.01	<0.01	<2	<0.05
BLK	Blank													
BLK	Blank													
BLK	Blank													

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QUALITY CONTROL REPORT VAN09003099.1

		WGHT	3B	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D
		Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V
		kg	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
		0.01	2	1	1	3	1	0.3	1	1	2	0.01	2	8	2	2	1	0.5	3	3	1
BLK	Blank		<2																		
BLK	Blank			<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<8	<2	<2	<1	<0.5	<3	<3	<1
Prep Wash																					
G1	Prep Blank		<2	<1	3	6	72	<0.3	4	4	582	2.04	<2	<8	<2	5	60	<0.5	<3	<3	40
G1	Prep Blank		<2	<1	4	8	91	<0.3	4	4	560	1.93	<2	<8	<2	4	55	<0.5	<3	<3	38

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Project: None Given
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QUALITY CONTROL REPORT VAN09003099.1

		1D Ca % 0.01	1D P % 0.001	1D La ppm 1	1D Cr ppm 1	1D Mg % 0.01	1D Ba ppm 1	1D Tl % 0.01	1D B ppm 20	1D Al % 0.01	1D Na % 0.01	1D K % 0.01	1D W ppm 2	1D S % 0.05
BLK	Blank													
BLK	Blank	<0.01	<0.001	<1	<1	<0.01	<1	<0.01	<20	<0.01	<0.01	<0.01	<2	<0.05
Prep Wash														
G1	Prep Blank	0.53	0.082	8	10	0.64	277	0.15	<20	1.06	0.09	0.60	<2	<0.05
G1	Prep Blank	0.51	0.083	7	11	0.62	266	0.14	<20	1.01	0.07	0.57	<2	<0.05

Appendix 3
X-Ray Diffraction Analysis

J.A. (Jim) McLeod
Manager, Global Discovery Labs
jim.mcleod@teck.com

Global Discovery Labs
Teck Cominco Limited
1486 East Pender Street
Vancouver, BC Canada V5L 1V8

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Teck

Lauren Greenlaw
Acme Analytical Labs Ltd.
852 East Hastings Street
Vancouver, B.C.
V6A 1R6

16 April, 2009

Dear Lauren: ***RE: VAN09000721 / G.D.L. Job V09-0065R***

Three samples were submitted for x-ray diffraction analysis. The results are as follows:

SAMPLE R09:04804: (#59167) contains:

1) Montmorillonite ..... Significant
2) Quartz ..... Minor

SAMPLE R09:04805 (#59185) contains:

1) Montmorillonite ..... Significant
2) Albite ..... Moderate
3) Quartz ..... Moderate

SAMPLE R09:04806 (#59188) contains:

1) Montmorillonite ..... Significant
2) Albite ..... Moderate
3) Quartz ..... Minor

Teck

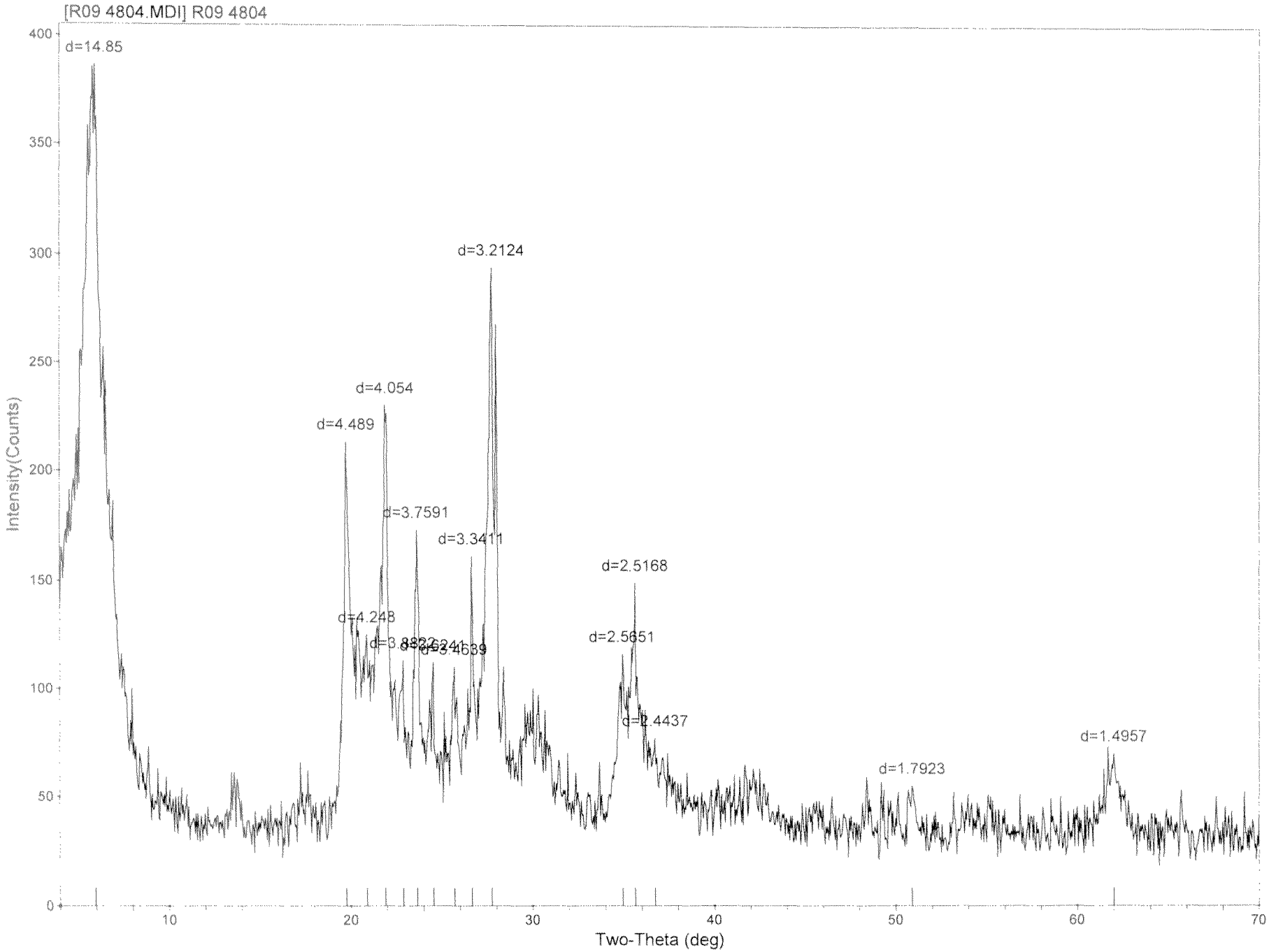
The x-ray diffraction patterns, digital data and mineral matches are all attached.

Regards,

J.A. McLeod, M.A.Sc., P.Eng.
Manager, G.D.L.

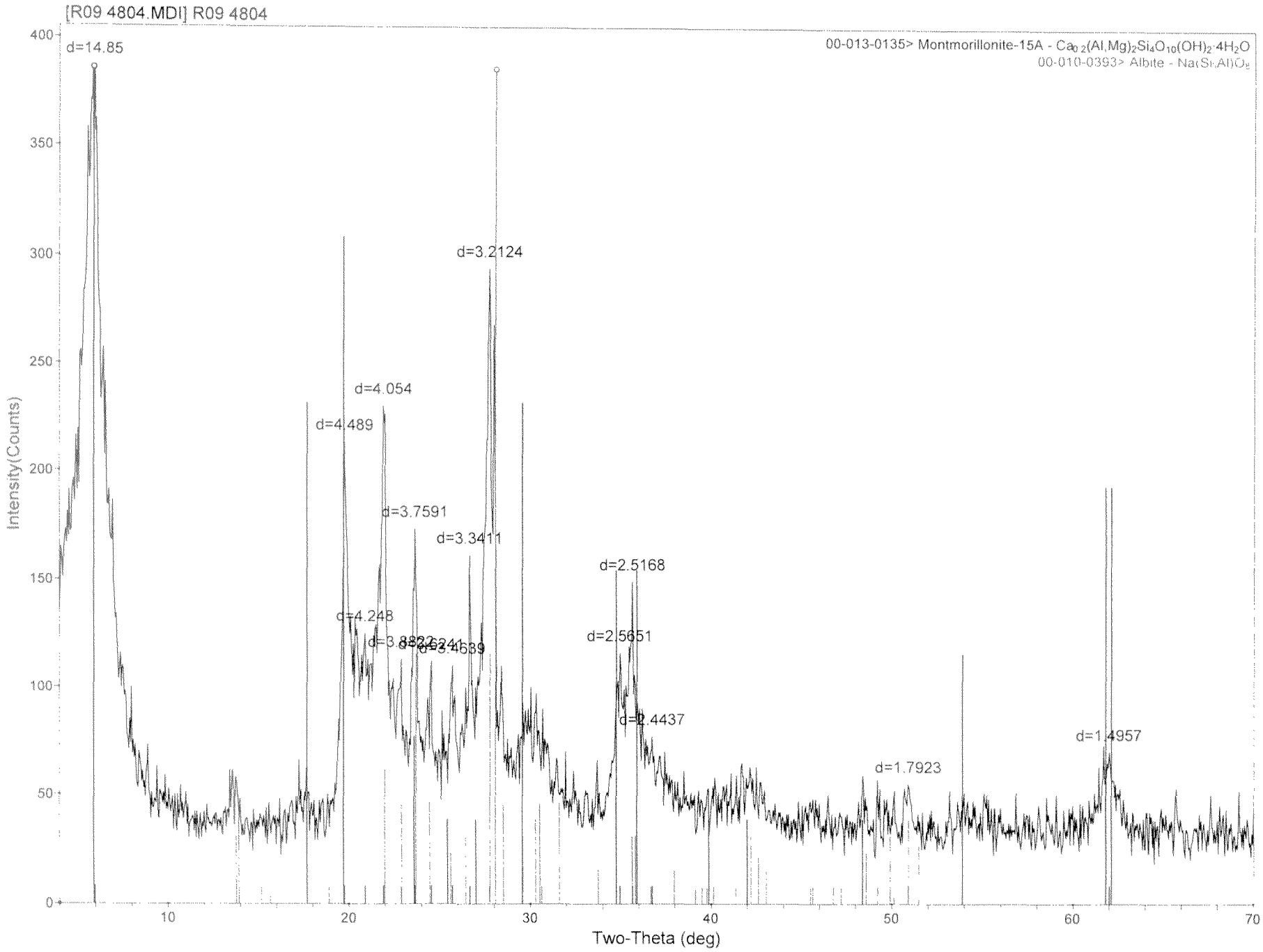
JAM/skw

App. (x-ray diffractograms)



Materials Data, Inc.

[XRD]<C:\Documents and Settings\XRD Computer\MDI\DataScan\Controllers\Goniom1\data-2008> Tuesday, April 07, 2009 03:46p (MDI/JADE8


[R09 4804.MDI] R09 4804
00-013-0135> Montmorillonite-15A - Ca0.2(Al,Mg)2Si4O10(OH)2·4H2O
00-010-0393> Albite - Na(Si,Al)O2
d=14.85
d=4.489
d=4.054
d=3.7591
d=3.3411
d=3.2124
d=2.5168
d=2.5651
d=4.248
d=2.4437
d=1.7923
d=1.4957
Intensity(Counts)
Two-Theta (deg)
0
50
100
150
200
250
300
350
400
10
20
30
40
50
60
70

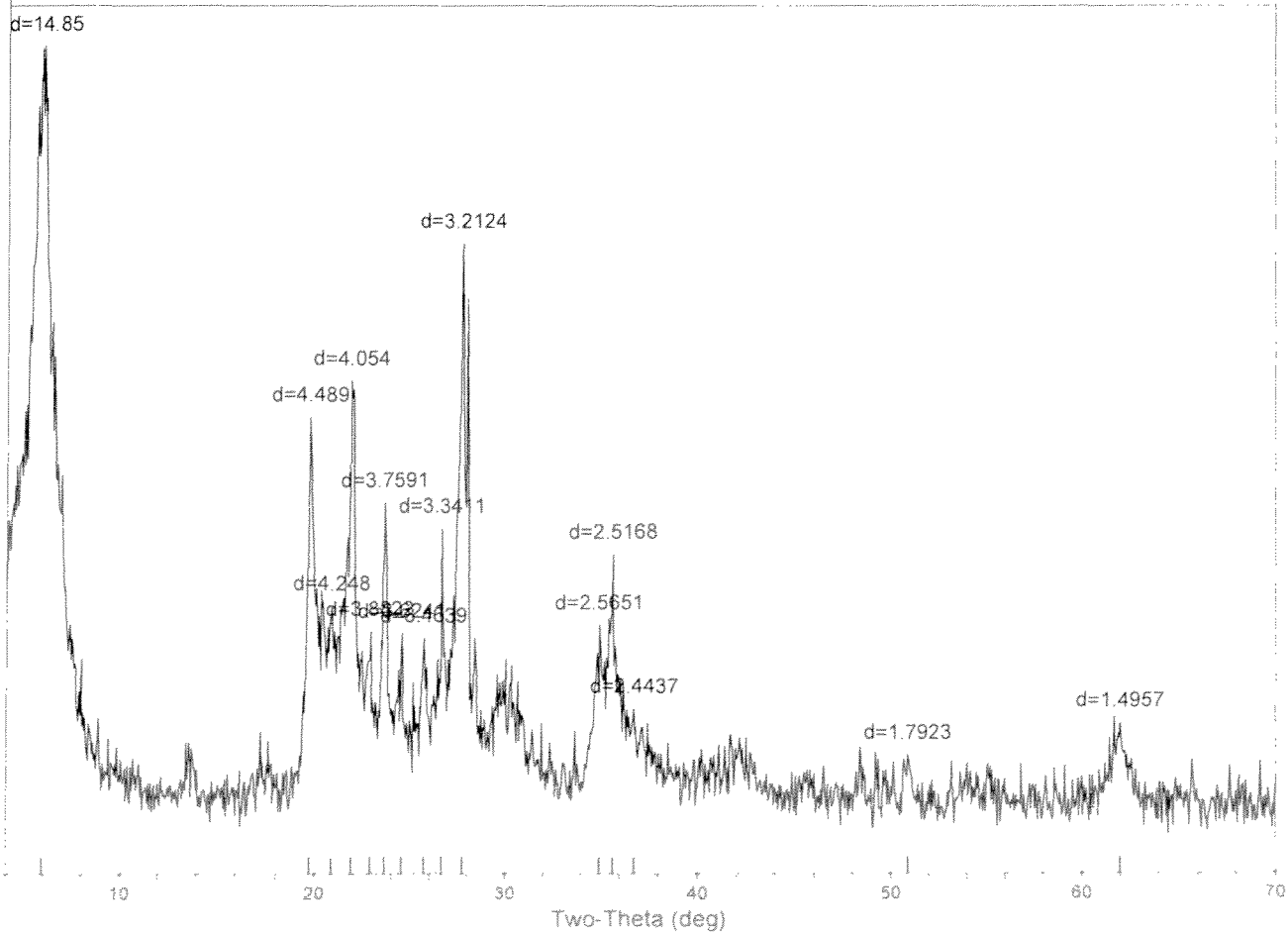
[R09 4804.MDI] R09 4804	Peak Search Report

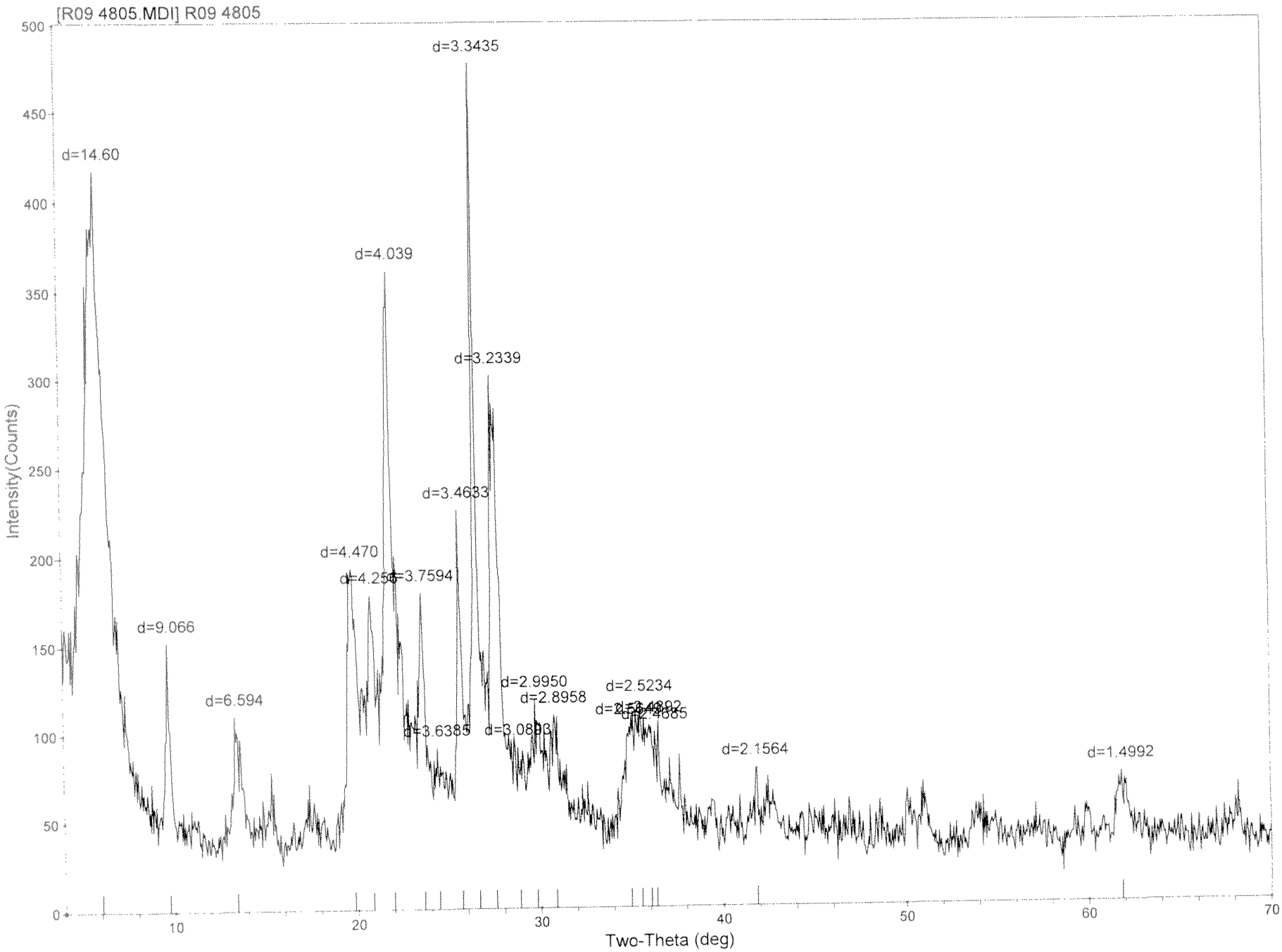
SCAN: 4.0/70.0/0.05/1(sec), Cu, I(max)=386.0, 03/27/09 03:08p

PEAK: 17(pts)/Parabolic Filter, Threshold=3.0, Cutoff=0.1%, BG=3/1.0, Peak-Top=Summit

NOTE: Intensity = Counts, 2T(0)=0.0(deg), Wavelength to Compute d-Spacing = 1.54059Å (Cu/K-alpha1)

#	2-Theta	d(Å)	BG	Height	H%	Area	A%	FWHM
1	5.948	14.8459	183	203	95.4	3472	100.0	0.728
2	19.761	4.4892	40	173	81.5	1792	51.6	0.440
3	20.896	4.2477	40	85	40.1	1221	35.2	0.608
4	21.909	4.0536	40	190	89.5	3143	90.5	0.702
5	22.889	3.8822	40	73	34.5	666	19.2	0.386
6	23.649	3.7591	40	133	62.7	1076	31.0	0.343
7	24.543	3.6241	40	72	34.0	692	19.9	0.407
8	25.698	3.4639	40	70	33.1	781	22.5	0.472
9	26.659	3.3411	40	121	57.1	924	26.6	0.324
10	27.748	3.2124	81	213	100.0	2343	67.5	0.468
11	34.950	2.5651	42	74	34.9	808	23.3	0.463
12	35.643	2.5168	42	107	50.4	1873	54.0	0.743
13	36.747	2.4437	42	35	16.5	487	14.0	0.589
14	50.908	1.7923	32	23	10.7	208	6.0	0.389
15	61.996	1.4957	37	33	15.7	537	15.5	0.685




[R09 4805.MDI] R09 4805
Intensity(Counts)
Two-Theta (deg)
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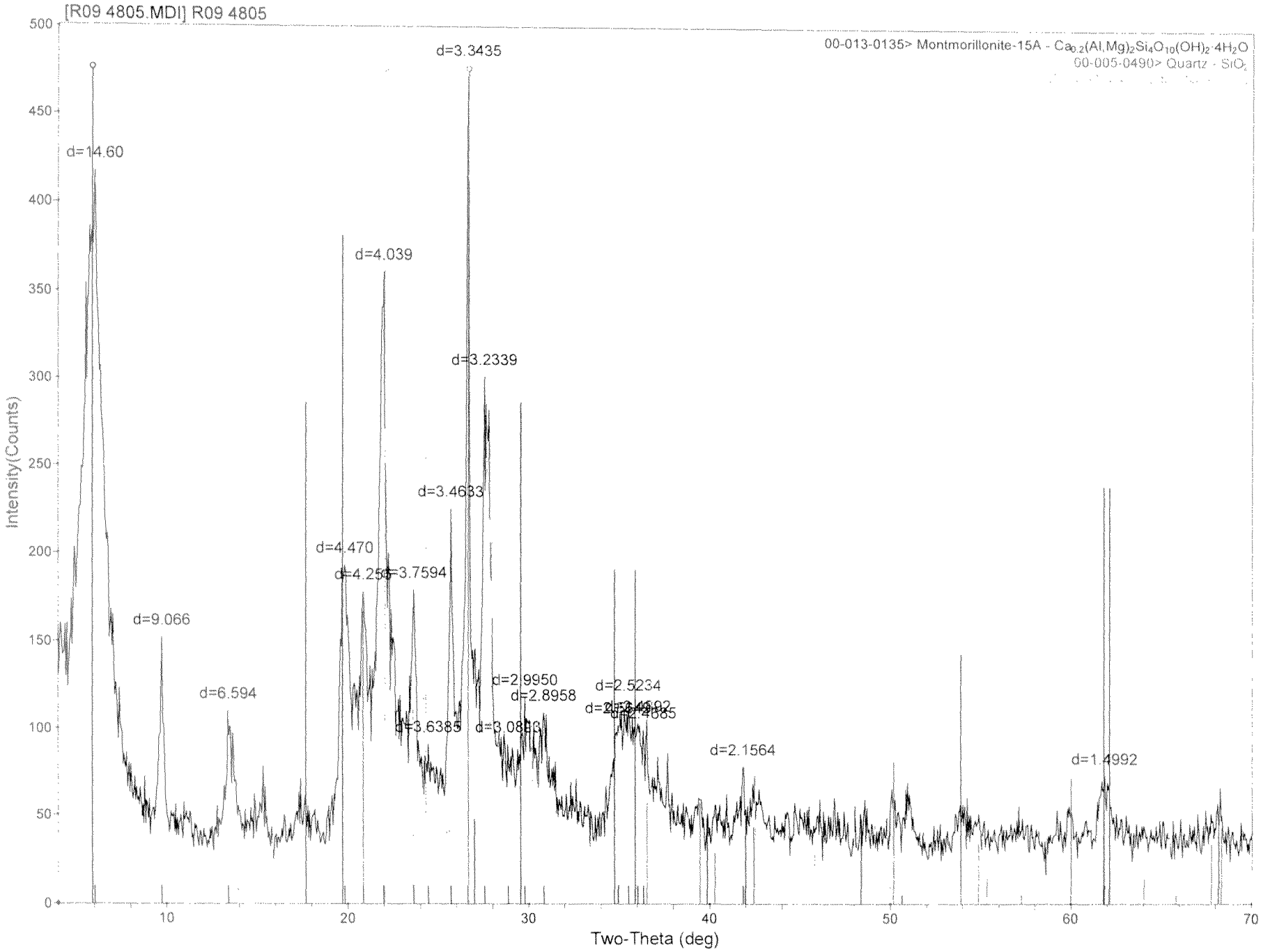
d=6.594
d=4.470
d=4.256
d=4.039
d=3.7594
d=3.6385
d=3.4633
d=3.3435
d=3.2339
d=3.0893
d=2.9950
d=2.8958
d=2.5234
d=2.4685
d=2.1564
d=1.4992



Materials Data, Inc.

[XRD]<C:\Documents and Settings\XRD Computer\MDI\DataScan\Controllers\Goniom1\data-2008> Wednesday, April 08, 2009 11:45a (MDI/JADE8

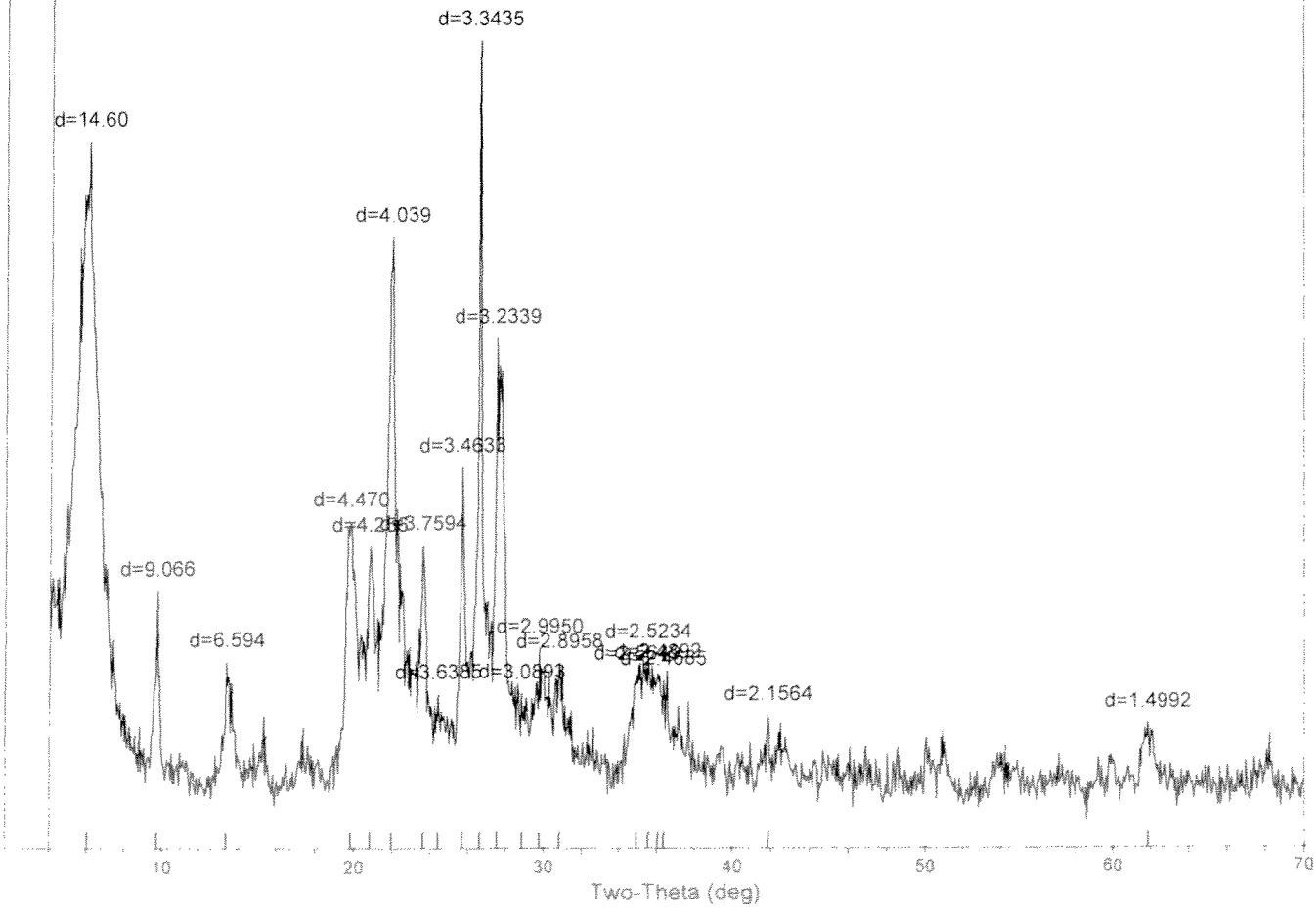
[R09 4805.MDI] R09 4805	Peak Search Report

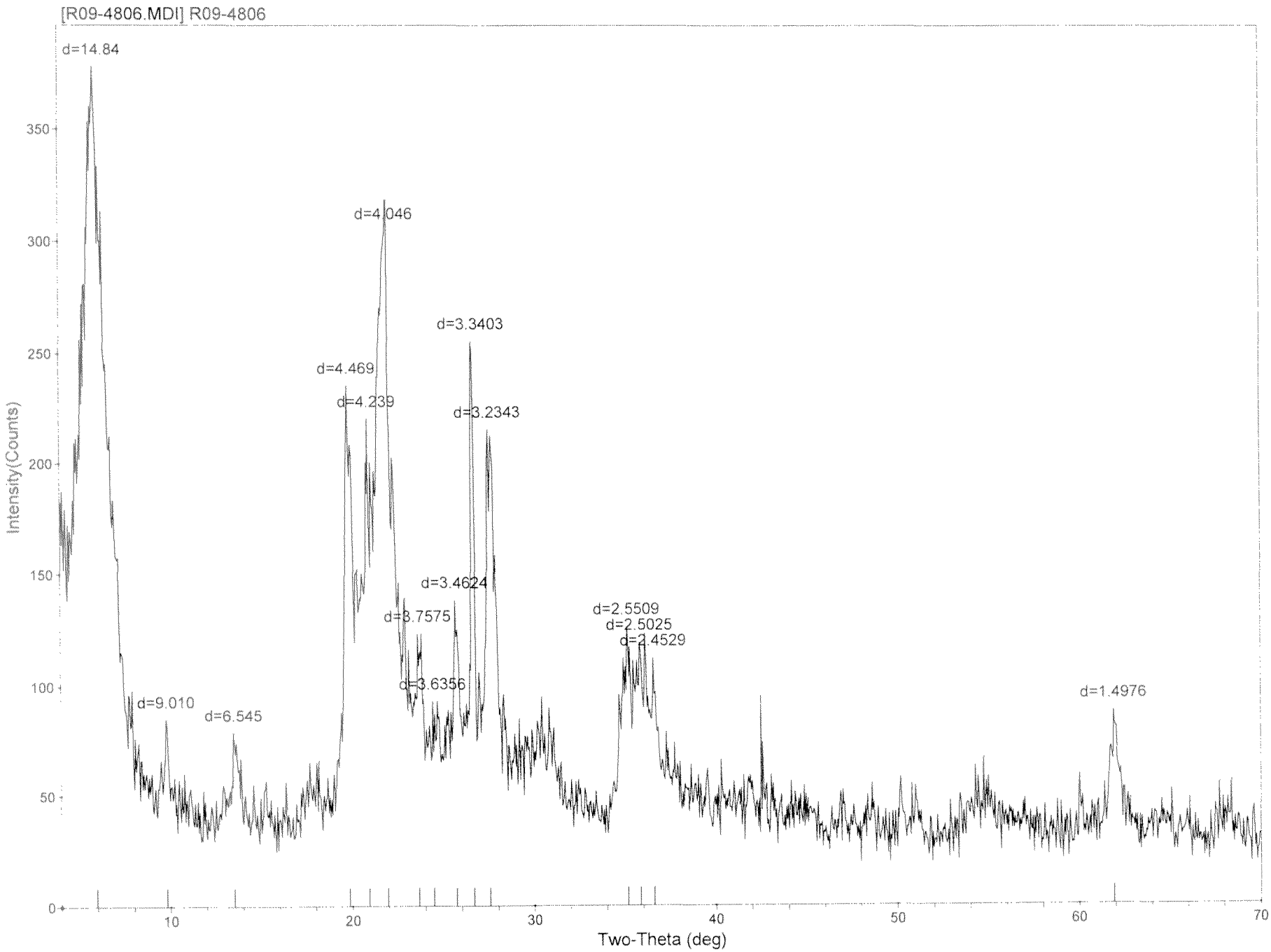
SCAN: 4.0/70.0/0.05/1(sec), Cu, I(max)=477.0, 03/27/09 03:39p

PEAK: 17(pts)/Parabolic Filter, Threshold=3.0, Cutoff=0.1%, BG=3/1.0, Peak-Top=Summit

NOTE: Intensity = Counts, 2T(0)=0.0(deg), Wavelength to Compute d-Spacing = 1.54059Å (Cu/K-alpha1)

#	2-Theta	d(Å)	BG	Height	H%	Area	A%	FWHM
1	6.047	14.6033	169	248	57.1	4426	96.8	0.758
2	9.748	9.0664	49	103	23.8	492	10.8	0.202
3	13.418	6.5937	41	69	15.9	656	14.4	0.403
4	19.846	4.4700	42	151	34.7	2420	52.9	0.683
5	20.853	4.2564	42	136	31.2	1944	42.5	0.609
6	21.989	4.0389	42	319	73.3	4571	100.0	0.610
7	23.647	3.7594	42	137	31.4	1230	26.9	0.382
8	24.445	3.6385	42	49	11.2	737	16.1	0.643
9	25.702	3.4633	42	183	42.0	1498	32.8	0.348
10	26.639	3.3435	42	435	100.0	3074	67.2	0.301
11	27.560	3.2339	42	259	59.5	3101	67.8	0.509
12	28.877	3.0893	42	49	11.2	359	7.9	0.313
13	29.808	2.9950	42	76	17.4	1551	33.9	0.870
14	30.853	2.8958	53	56	12.8	621	13.6	0.474
15	34.954	2.5649	43	59	13.5	771	16.9	0.560
16	35.547	2.5234	43	72	16.5	2035	44.5	1.208
17	36.052	2.4892	43	60	13.7	1670	36.5	1.191
18	36.366	2.4685	59	40	9.1	311	6.8	0.334
19	41.858	2.1564	50	28	6.5	70	1.5	0.105
20	61.837	1.4992	39	34	7.7	378	8.3	0.477




[R09-4806.MDI] R09-4806
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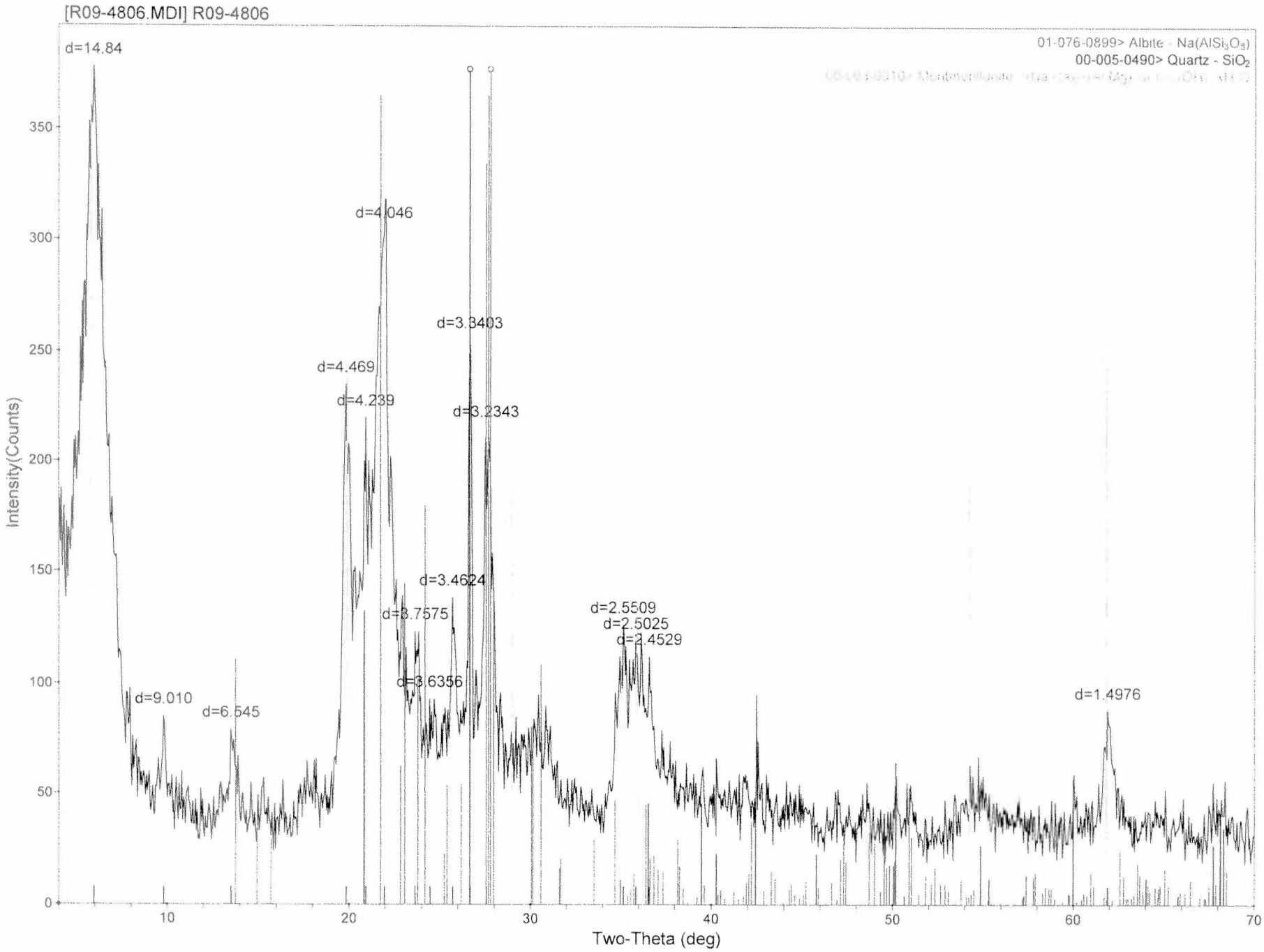
d=4.046
d=4.469
d=4.239
d=3.3403
d=3.2343
d=3.4624
d=3.7575
d=3.6356
d=2.5509
d=2.5025
d=2.4529
d=9.010
d=6.545
d=1.4976
Intensity(Counts)
Two-Theta (deg)
0
50
100
150
200
250
300
350
10
20
30
40
50
60
70


[R09-4806.MDI] R09-4806
01-076-0899> Albite - Na(AlSi3O8)
00-005-0490> Quartz - SiO2
d=14.84
d=4.046
d=3.3403
d=4.469
d=4.239
d=3.2343
d=3.4624
d=3.7575
d=2.5509
d=2.5025
d=2.4529
d=3.6356
d=9.010
d=6.545
d=1.4976
Intensity(Counts)
Two-Theta (deg)
0
50
100
150
200
250
300
350
10
20
30
40
50
60
70

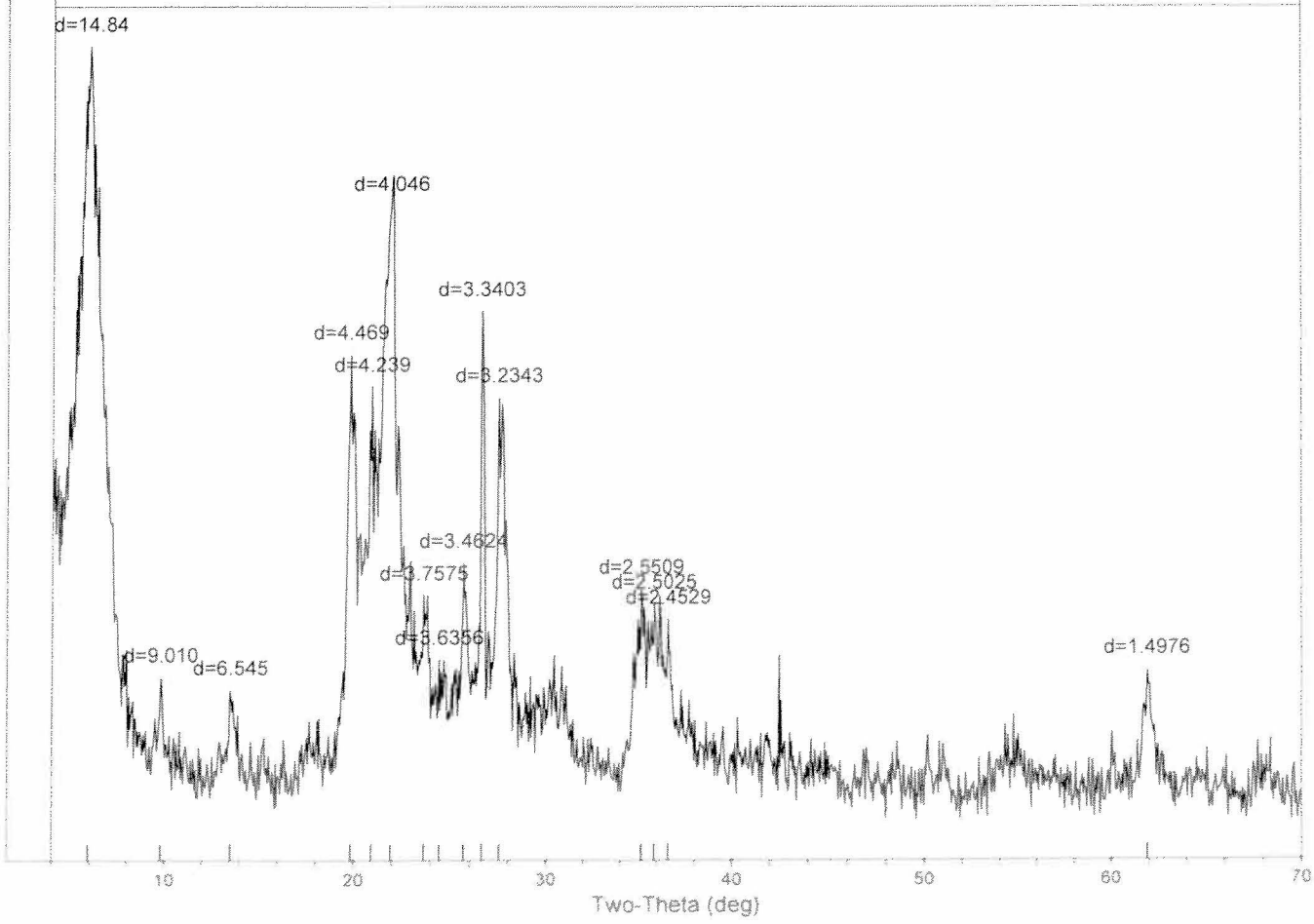
[R09-4806.MDI] R09-4806	Peak Search Report

SCAN: 4.0/70.0/0.05/1(sec), Cu, I(max)=378.0, 03/30/09 02:53p

PEAK: 19(pts)/Parabolic Filter, Threshold=3.0, Cutoff=0.1%, BG=3/1.0, Peak-Top=Summit

NOTE: Intensity = Counts, 2T(0)=0.0(deg), Wavelength to Compute d-Spacing = 1.54059Å (Cu/K-alpha1)

#	2-Theta	d(Å)	BG	Height	H%	Area	A%	FWHM
1	5.951	14.8392	186	192	74.8	3498	62.2	0.775
2	9.809	9.0095	49	36	13.9	156	2.8	0.187
3	13.518	6.5451	39	40	15.8	418	7.4	0.440
4	19.849	4.4693	47	188	73.1	1920	34.1	0.435
5	20.942	4.2386	47	173	67.3	1914	34.0	0.471
6	21.952	4.0456	47	257	100.0	5626	100.0	0.932
7	23.659	3.7575	47	76	29.5	919	16.3	0.517
8	24.465	3.6356	47	46	17.8	555	9.9	0.517
9	25.709	3.4624	47	91	35.3	1030	18.3	0.483
10	26.665	3.3403	47	208	80.9	1283	22.8	0.263
11	27.557	3.2343	71	144	56.0	1665	29.6	0.493
12	35.152	2.5509	42	84	32.9	1021	18.1	0.515
13	35.855	2.5025	42	77	30.1	2451	43.6	1.348
14	36.605	2.4529	42	70	27.4	753	13.4	0.455
15	61.910	1.4976	39	49	19.1	515	9.2	0.446



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Appendix 4
Petrographic Survey Report

VANCOUVER GEOTECH LABS
Unit 38A – 1640 SE Kent Avenue
Vancouver, British Columbia
Canada V5P 2S7

PETROGRAPHIC SURVEY REPORT

Petrographic report prepared for:

695809 B.C. Ltd

510 - 700 West Pender Street
Vancouver, British Columbia
V6C 2T7

Petrographic report prepared by:
Anna Fonseca, P. Geo.
804, Wood St.
Whitehorse YT Y1A 2G5

September 11, 2009

Introduction, Scope and Methodology

This petrographic survey of 695809 B.C. Ltd.'s samples included 17 samples that were prepared into standard uncovered thin sections by Vancouver GeoTech Labs. Vancouver GeoTech Labs commissioned Anna Fonseca, P.Geo. to produce petrographic descriptions and a summary report of the sample suite. The samples were not stained with potassium cobaltinitrate, therefore there is some uncertainty on the relative abundances of feldspars and quartz.

Petrographic observations were done using a Leitz Ortholux II Pol-BK microscope, and digital photographs were taken using a Canon PowerShot S51S connected directly to a desktop computer. A minimum of six digital photographs were taken for each sample to illustrate the principal features and mineralogy. The first photograph was always taken at the lowest magnification in order (6 mm field of view) to display the characteristic texture and mineralogy of the sample. Modal abundances were done as visual estimates, and reflect the total volume of each mineral in the thin section (including veins and fine-grained groundmass). Observations were input into an Access database that contains a combination of memo and look-up fields for descriptions of hand specimen, lithology, structure, texture, primary and alteration minerals, and opaques. The database includes hand specimen descriptions, which are brief descriptions of the thin section billots, and is exported as an .xls file.

An absolute intensity was assigned for each secondary mineral on a scale of 1 (weak) to 4 (very strong), and in extreme cases a 5 intensity was assigned. An alteration index (AI) was assigned for each secondary mineral in order to take into account the influence of primary mineralogy on the alteration intensity recorded. For instance, a sample with abundant chlorite that formed as a devitrification product of volcanic glass may be assigned an absolute chlorite intensity of 4, whereas the chlorite alteration index would be 1. Mineral alteration indexes were summed to produce a rock alteration index. In most cases a rock alteration index of 10 or higher is indicative of significant alteration. A rock alteration index of 5 or higher should be considered indicative of significant alteration.

Table 1 provides a graphic summary of quantitative and qualitative data and interpretations from petrographic observations. Appendix I has the individual thin section reports and photomicrographs.

Lithologic Classification

Visual estimates of modal mineralogy were used for rock classification. Additional comments on uncertainties or possible protoliths were recorded and are presented beneath the Lithology field in the individual thin section reports. The modal mineralogy fields describe the entire current rock composition (i.e., it includes secondary metamorphic and hydrothermal alteration minerals). Where pseudomorphism is recognized, the rock name was given assigned to reflect the original lithologic composition.

Petrography of the Sample Suite

Lithology

All samples consist of volcanic and volcaniclastic lithologies.
Coherent volcanic rocks include aphanitic rocks of basaltic and andesitic composition that have well developed trachitic texture defined by narrow plagioclase laths intergrown with variable amounts of glass and devitrification products (palagonite, clay, Fe-oxyhydroxides). Sample Chr-VV also has strongly vesicular texture, and sample UNK-1-magn has very well developed perlitic texture and enough glass that the lithology can be classified as andesite or as volcanic glass. Sample UNK-II-sph is a volcanic glass.

Volcaniclastic lithologies consist of intermediate to mafic ash to lapilli tuff that show evidence of hot emplacement such as trachitic, perlitic and spheroidal textures.
Sample DDH08-06@23m is a volcaniclastic conglomerate in which hot emplacement evidence was not observed, therefore the term tuff cannot be applied.

Volcanic Textures

Many of the samples display textural evidence of hot emplacement followed by volume shrinkage, which results in the development of perlite, interconnected amygdales.
Spherulites consisting of spherical aggregates of radiating fibres (mainly very fine-grained plagioclase-clay) typically develop in volcanic glass during devitrification.

Deformation and Metamorphism

The samples do not present penetrative foliation fabrics.

Alteration

Most of the samples are unaltered. Supergene green atacamite occurs in 5 samples.
Pseudomorphic carbonate replaces plagioclase in 4 samples. Clay occurs dominantly as fracture fill and as devitrification products.

Table 1. Graphic summary of petrographic observations.

Sample	Lithology	Texture 1	Texture 2	opaques %	white mica	carbonate	chlorite	quartz	clay	other mineral	Rock AI	Alteration Assemblage
7	Mafic Lapilli tuff	clastic		2								
Chr-VV	Basalt	trachitic	vesicular	5						atacamite	7	supergene
DDH08-05@158.5	feldspar-phyric crystal-lithic tuff	porphyritic	trachitic	2						atacamite	6	carbonate, supergene
DDH08-05@232	ash-tuff	laminated	spherulitic	1							1	
DDH08-05@293	Mafic Lapilli tuff	pumice	perlite								1	carbonate
DDH08-05@374.9	Andesite	trachitic	porphyritic	7							8	propylitic(?)
DDH08-06@110.5	intermediate tuff	amygdaloidal	spheroidal	5								
DDH08-06@112.5	intermediate tuff	amygdaloidal	spheroidal	5								
DDH08-06@151	intermediate lapilli-ash-tuff	spherulitic		2								
DDH08-06@159	intermediate lapilli-ash-tuff			2								
DDH08-06@203	Mafic Ash tuff	trachitic	brecciated							atacamite	9	supergene
DDH08-06@23	volcaniclastic conglomerate	clastic	trachitic									
DDH08-07@115	Mafic Lapilli tuff	trachitic	porphyroclastic								1	
DDH08-07@90.2	mafic ash and lapilli tuff	trachitic	porphyritic	2							5	
DDH-Breccia	Basalt	trachitic	flow banded							atacamite	11	carbonate
UNK1-magn	Andesite	perlitic								atacamite	5	supergene
UNK-II-sph	volcanic glass	spherulitic										

STATEMENT OF QUALIFICATIONS

I, Anna Fonseca, P. Geo. certify that:

1. I have been involved in geological mapping and mineral exploration in North America, Central America, South America and Russia since 1994.

2. I am a graduate of the University of Alaska Fairbanks with a Degree in Geology (B.Sc., 1993) and I obtained a Masters of Science degree from the University of British Columbia in Mineral Exploration (M.Sc., 1998).

3. I am a member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia.

4. I have previous experience in petrographic descriptions of volcanic rock samples from the North and South American cordilleras.

5. I have previous field experience in the exploration and mapping of volcanic rocks in North, Central and South America and in Russia.

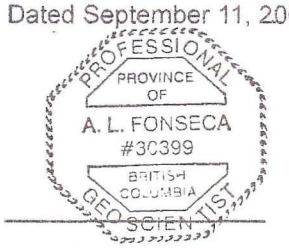
6. I am the author of all sections of this Report on the Petrographic Survey Report for 695809 B.C. Ltd.

7. I did not participate in field work in any of 695809 B.C. Ltd.'s properties or in adjacent exploration projects.

8. I am not aware of the location in which these samples were collected.

9. I have no direct or indirect interest in the properties or securities of 695809 B.C. Ltd., of Vancouver GeoTech Labs, or their affiliated companies, nor do I expect to acquire such interest.

Dated September 11, 2009



Anna Fonseca, P.Geo.

Appendix I

Individual Thin Section Reports

Hand Specimen Maroon, medium-grained volcanic rock with lithic fragments of various compositions <6 mm wide, weakly magnetic.

Mode Mineralogy

%		Occurence
	Quartz	
5	Plagioclase	volcaniclastic
	Kspar	
	White Mica	
3	Clay	devitrification
	Carbonate	
	Biotite	
	Epidote	
	Chlorite	
2	Opaques	volcanic
	Fe-oxyhydrox	
	Jarosite	
15	glass	volcanic
10	Palagonite	devitrification
65	lithic fragment	volcanic
0		

Texture 1 clastic Structure

Texture 2 Strength

Grain Size very coarse grained (>16mm) Groundmass very fine grained

Ksp Stain not stained

Modal Mineralogy Comments

Fine-grained glass-smectite-palagonite cement. Clast supported volcaniclastic rock with subrounded to subangular lithic clasts of various compositions and sparse plagioclase phenoclasts. Palagonite-glass is evidence of hot emplacement.

Veins

	Mineral 1	Mineral 2	Mineral 3	Envelope
Vein 1				
Vein 2				
Vein 3				

Opaque Mineralogy

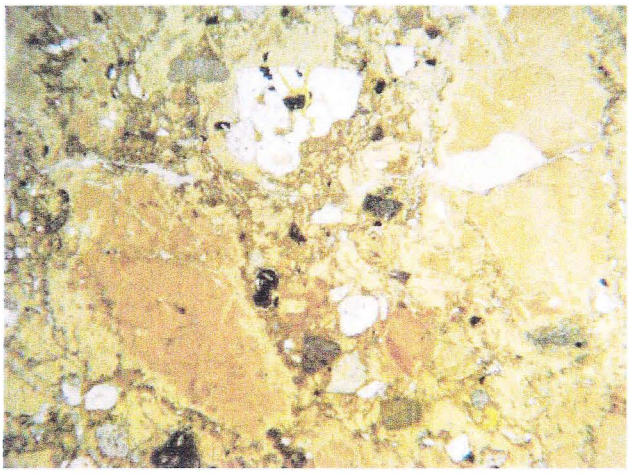
%	Opaque	How
	Hema	
0	Mag	
0	Py	
	Po	
0	Cpy	
	Moly	
	Asp	
	Sph	
	Gn	

Secondary Mineralogy

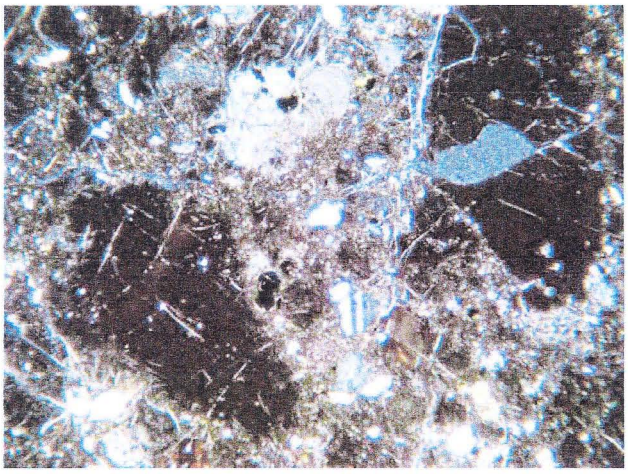
Mineral	Intensity	How	How 2	AI
Wt Mic				
Carb.				
Clay				
Epidote				
Chlorite				
Biotite				
Kspar				
Albite				
Quartz				
Jarosite				

Alteration Comments

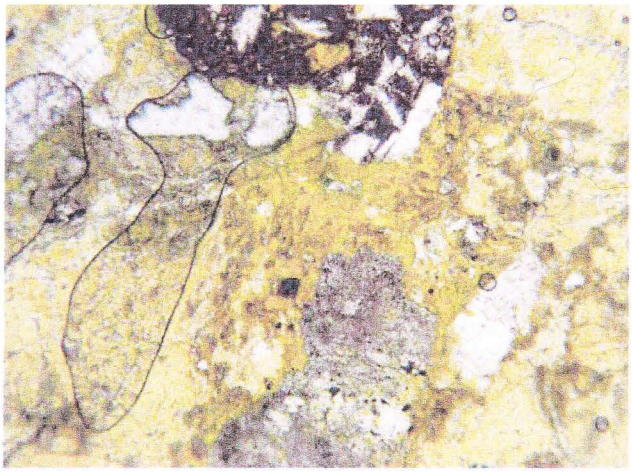
unaltered rock



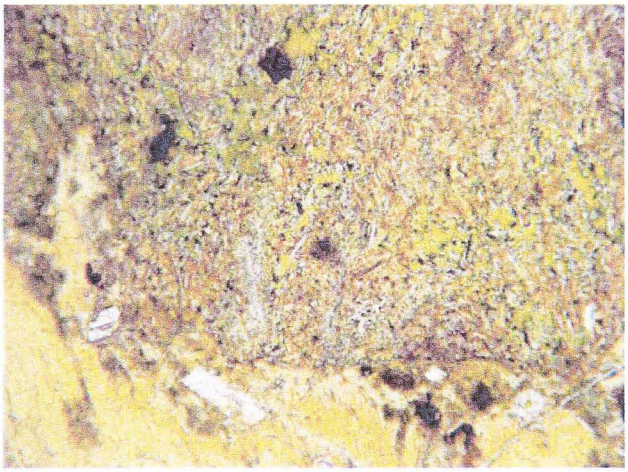
07_001 FOV (mm): 6 Plane polarized light
Smectitic (devitrified) aphanitic cement and abundant phenoclasts and lithic clasts.



07_002 FOV (mm): 6 Crossed polars
Same, under crossed polars. Polymict volcaniclastic rock.

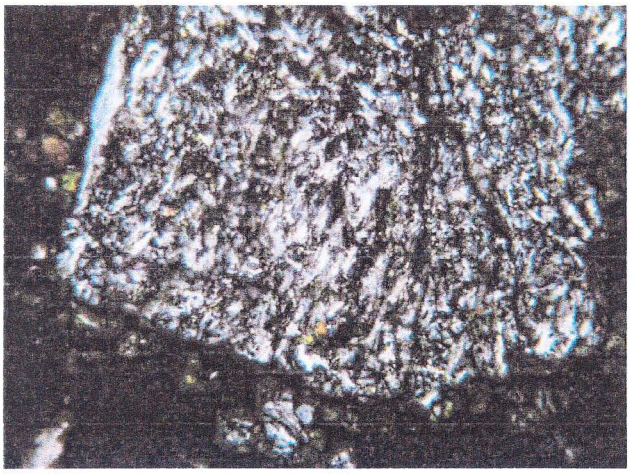


07_003 FOV (mm): 1.7 Plane polarized light
Locally abundant yellow palagonite.



07_004 FOV (mm): 1.7 Crossed polars
Basaltic to andesitic clast with trachitic texture and abundant palagonite.

07_005 FOV (mm): 6 Crossed polars
Plagioclase phenoclasts.



07_006 FOV (mm): 1.7 Crossed polars
Basaltic clast.

Chr-VV **Lithology** Basalt **Assemblage** supergene **AI:** 7

Andesitic to basaltic composition. Cobaltinitrate staining is necessary for an accurate estimation of feldspar contents.

Hand Specimen Strongly vesicular, aphanitic maroon coloured rock with abundant green mineral lining vesicles, moderately magnetic.

Mode Mineralogy

%		Occurence
	Quartz	
45	*Plagioclase*	volcanic
	Kspar	
	White Mica	
	Clay	
2	*Carbonate*	hydrothermal1
	Biotite	
	Epidote	
	Chlorite	
5	*Opaques*	hydrothermal1
	Fe-oxyhydrox	
	Jarosite	
30	*Palagonite*	devitrification
12	*atacamite*	hydrothermal1
7	*vesicles (voids)*	
0		

Texture 1 trachitic *Structure*

Texture 2 vesicular *Strength*

Grain Size medium grained (>0.25<2mm) *Groundmass* medium grained (

Ksp Stain not stained

Modal Mineralogy Comments

The aphanitic texture has trachitic and strong vesicular textures and is composed by fine- to medium-grained plagioclase laths and abundant palagonite. Rare plagioclase phenocrysts <0.3 mm. Vesicles are irregular, interconnected and lined by green atacamite and locally filled by carbonate.

Veins

	Mineral 1	*Mineral 2*	*Mineral 3*	*Envelope*
Vein 1				
Vein 2				
Vein 3				

Opaque Mineralogy

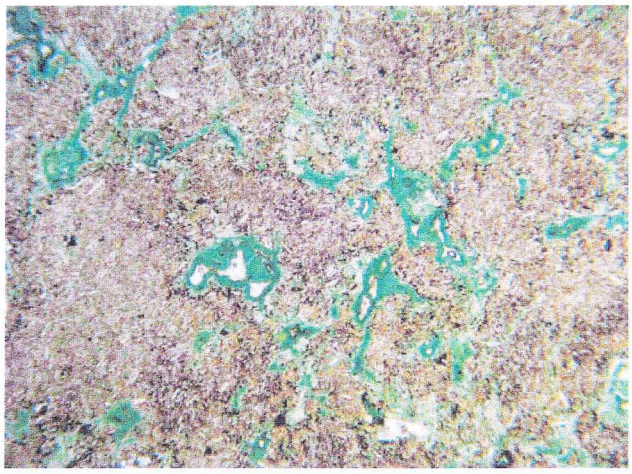
%	*Opaque*	*How*
	Hema	
0	*Mag*	
0	*Py*	
	Po	
0	*Cpy*	
	Moly	
	Asp	
	Sph	
	Gn	

Secondary Mineralogy

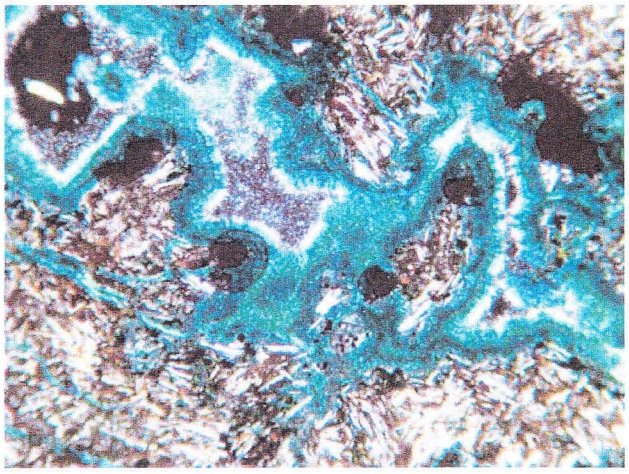
Mineral	*Intensity*	*How*	*How 2*	*AI*
Wt Mic				
Carb.	very weak			2
Clay				
Epidote				
Chlorite				
Biotite				
Kspar				
Albite				
Quartz				
Jarosite				
atacamite				5

Alteration Comments

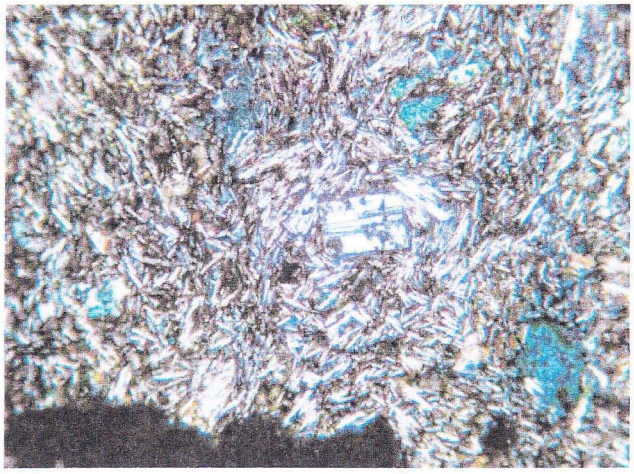
Very strong atacamite lining vesicles and their interconnecting fissures. Rare carbonate (calcite) filling vesicle cores after the crystallization of atacamite.



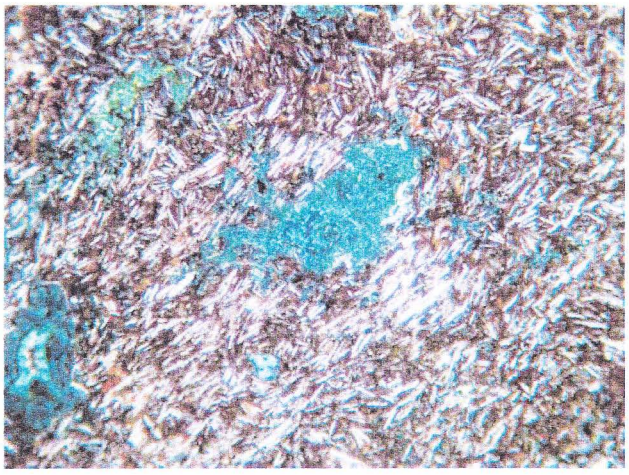
Chr-VV_001 FOV (mm): 6 Plane polarized light
Trachitic texture in the groundmass and abundant interconnected vesicles filled by green atacamite.



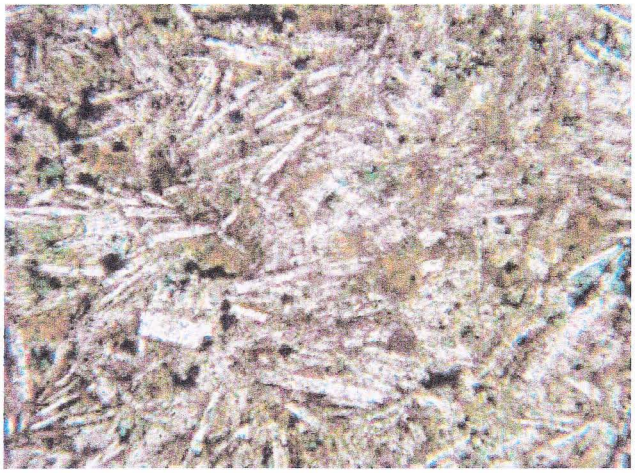
Chr-VV_002 FOV (mm): 1.7 Crossed polars
Colloform texture in atacamite lining vesicles.



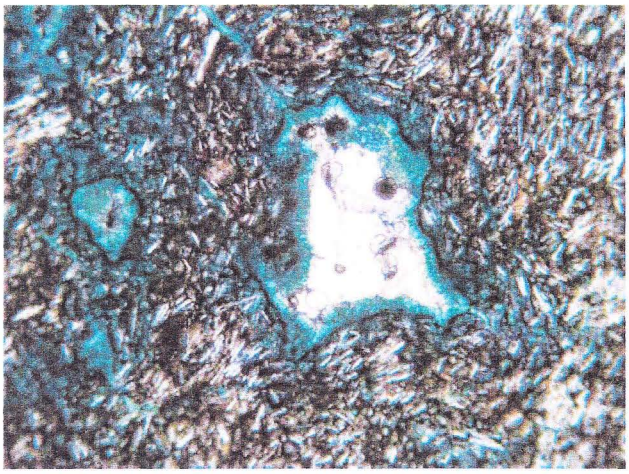
Chr-VV_003 FOV (mm): 1.7 Crossed polars
Rare euhedral plagioclase phenocrysts.



Chr-VV_004 FOV (mm): 1.7 Crossed polars
Green atacamite completely fills some of the vesicles.



Chr-VV_005 FOV (mm): 0.4 Plane polarized light
Abundant yellow-orange palagonite in the groundmass.



Chr-VV_006 FOV (mm): 1.7 Crossed polars
Locally carbonate (beige) fills the core of vesicles.

Hand Specimen Dark grey and brown, fine-grained clastic(?), strongly magnetic rocks cut by narrow white carbonate veinelts. The sample contains two domains: a reddish-brown clastic(?) domain and a black-grey porphyritic domain.

Mode Mineralogy

%		Occurence
	Quartz	
28	*Plagioclase*	volcaniclastic
2	*Kspar*	volcaniclastic
	White Mica	
43	*Clay*	volcaniclastic
3	*Carbonate*	hydrothermal1
	Biotite	
	Epidote	
	Chlorite	
2	*Opaques*	hydrothermal1
7	*Fe-oxyhydrox*	volcaniclastic
	Jarosite	
12	*Palagonite*	devitrification
2	*lithic clasts*	volcaniclastic
2	*brochantite*	

Texture 1 porphyritic *Structure*

Texture 2 trachitic *Strength*

Grain Size coarse grained (>2<16 mm) *Groundmass* very fine grained

Ksp Stain not stained

Modal Mineralogy Comments

Plagioclase and lesser kspar form euhedral to subhedral phenoclasts and crystal fragments < 3 mm wide. Trachitic texture fine-grained plagioclase-smectite+/-glass makes the groundmass and angular clasts. Orange brown palagonite (a devitrification mineraloid that is a mixture of smectite clay and glass) occurs locally.

Veins

	Mineral 1	*Mineral 2*	*Mineral 3*	*Envelope*
Vein 1	Carbonate			
Vein 2				
Vein 3				

calcite+/- clay veinlets < 1 mm

Opaque Mineralogy

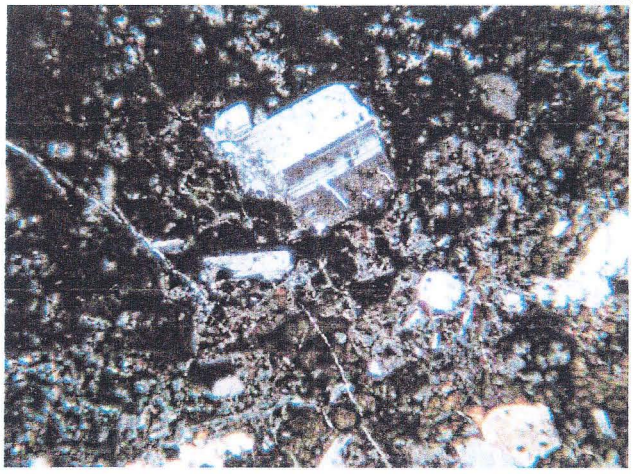
%	*Opaque*	*How*
	Hema	
0	*Mag*	
0	*Py*	
	Po	
0	*Cpy*	
	Moly	
	Asp	
	Sph	
	Gn	

Secondary Mineralogy

Mineral	*Intensity*	*How*	*How 2*	*AI*
Wt Mic				
Carb.	moderate	pseudomorph		3
Clay	moderate	pseudomorph		3
Epidote				
Chlorite	weak			
Biotite				
Kspar				
Albite				
Quartz				
Jarosite				
atacamite		pseudomorph		

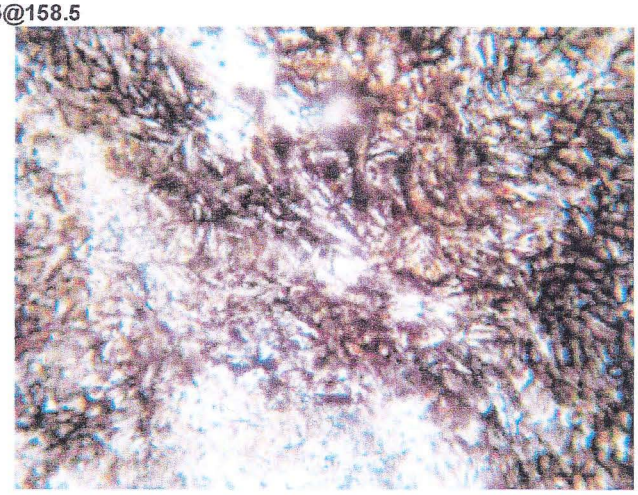
Alteration Comments

Moderate pseudomorphic carbonate and lesser clay locally completely replace irregular lithic clasts and partly replace feldspar phenoclasts. Minor green fine-grained malachite(?) replaces small anhedral phenoclasts.



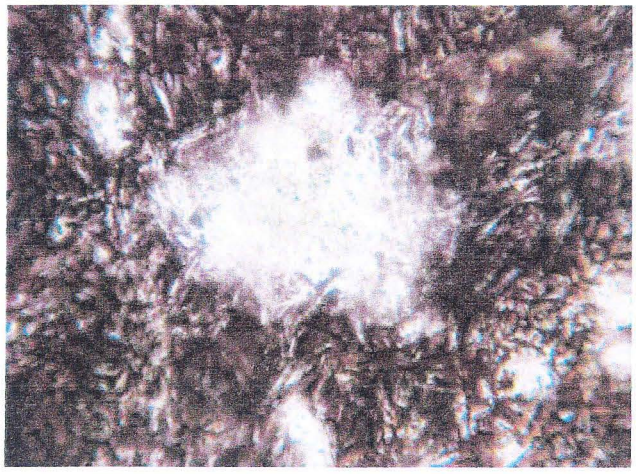
DDH08-05@158.5_001 FOV (mm): 6 Crossed polars

Remnant porphyritic texture defined by well preserved subhedral plagioclase grain with well developed polysynthetic twinning.



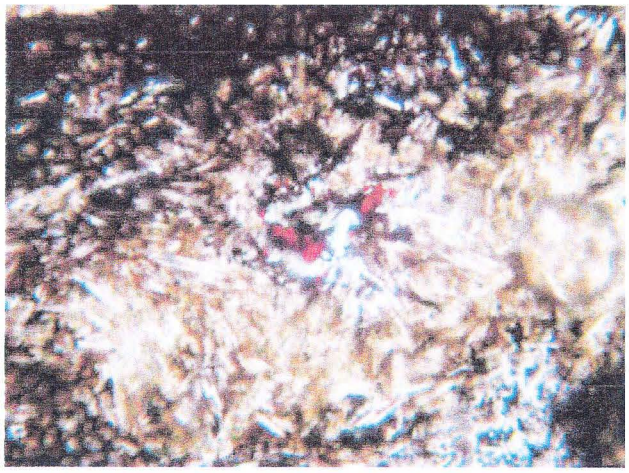
DDH08-05@158.5_002 FOV (mm): 0.4 Plane polarized light

Dark brown felty texture clay-Fe-oxyhydroxides make the groundmass.



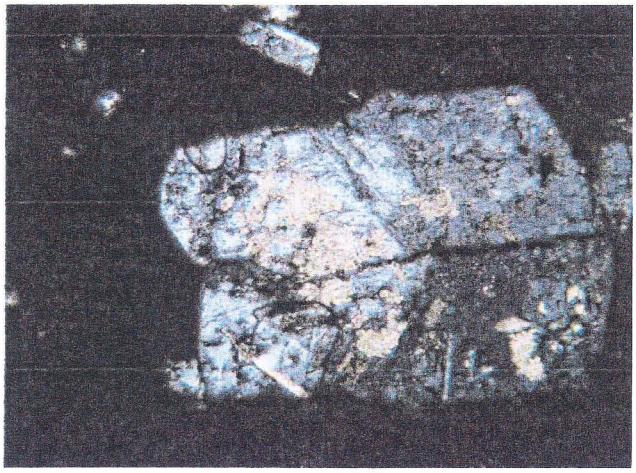
DDH08-05@158.5_003 FOV (mm): 0.4 Plane polarized light

Green brocchantite(?)-clay replaces phenocrysts.



DDH08-05@158.5_004 FOV (mm): 0.4 Plane polarized light

Green brocchantite(?) and blood red hematite replace an anhedral phenocryst.

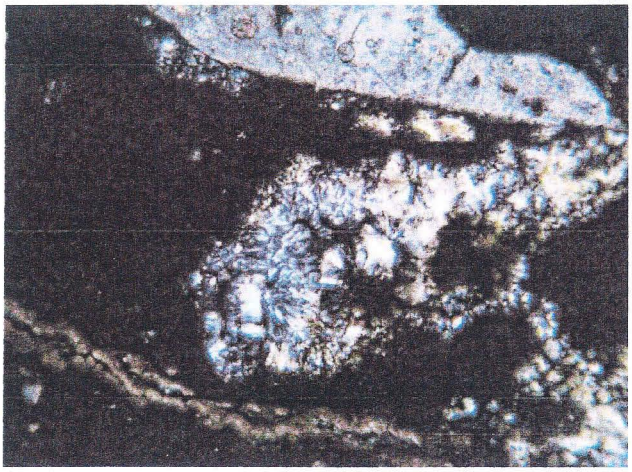


DDH08-05@158.5_005 FOV (mm): 1.7 Crossed polars

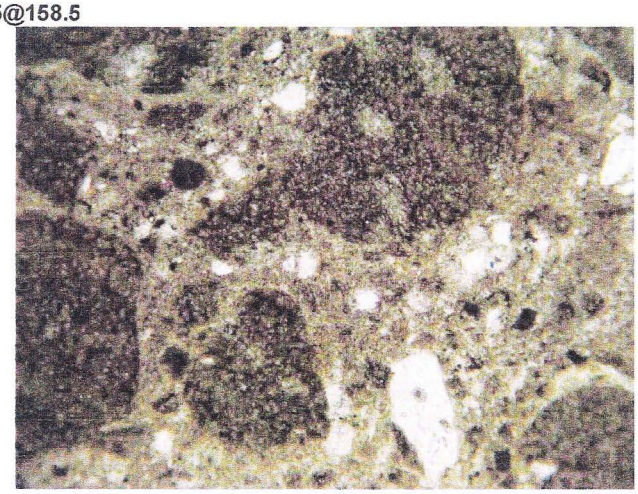
Carbonate replaces twinned plagioclase grains in the fine-grained porphyritic domain.

DDH08-05@158.5_006 FOV (mm): 1.7 Crossed polars

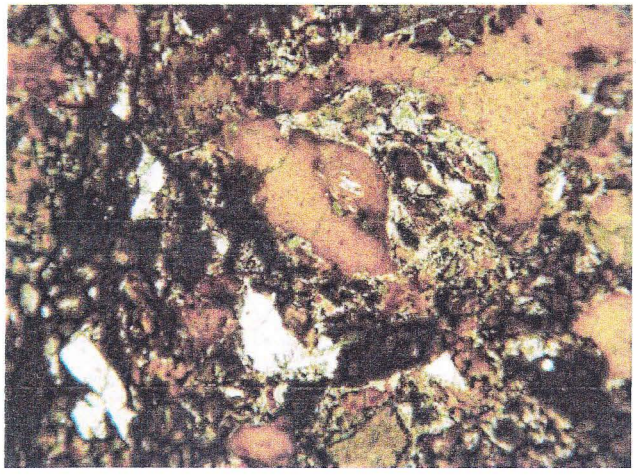
Carbonate-opaques completely replace an irregular phenoclast.



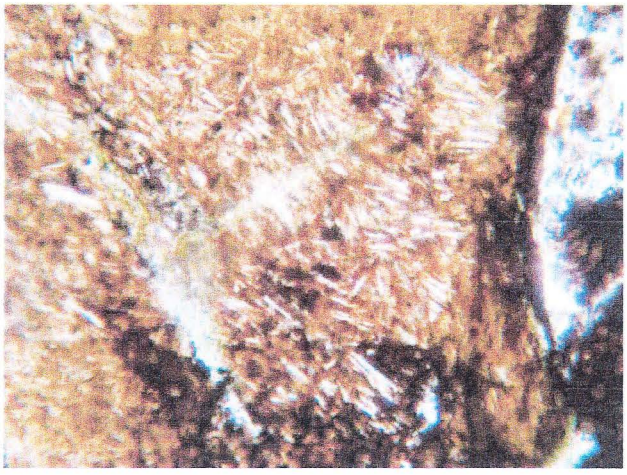
DDH08-05@158.5_007 FOV (mm): 1.7 Crossed polars
Fine-grained clay-Fe-oxyhydroxide completely replace an irregular phenoclast.



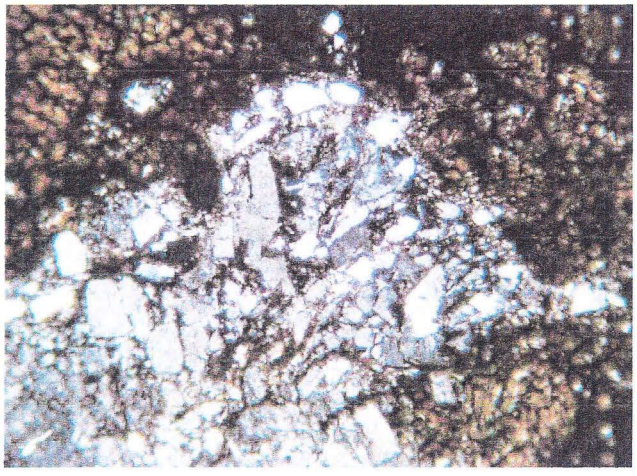
DDH08-05@158.5_008 FOV (mm): 1.7 Crossed polars
Dark brown clay+/-chlorite replaces lithic(?) clasts.



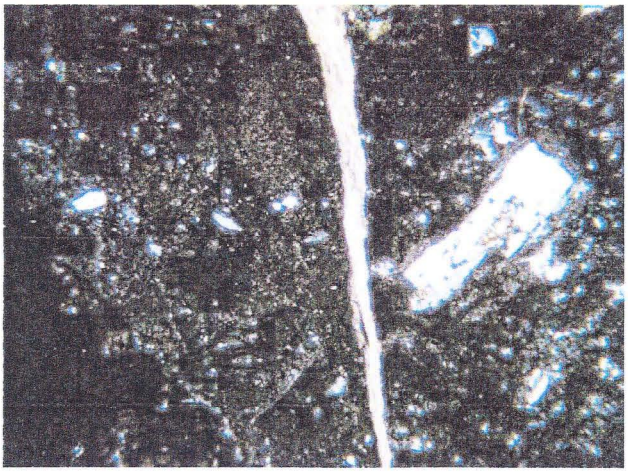
DDH08-05@158.5_009 FOV (mm): 1.7 Crossed polars
Orange brown palagonite (mineraloid mixture of hydrated glass and smectites).



DDH08-05@158.5_010 FOV (mm): 1.7 Crossed polars
Trachitic texture in clast replaced by fine-grained plagioclase-smectite.



DDH08-05@158.5_011 FOV (mm): 1.7 Crossed polars
Lithic clast.



DDH08-05@158.5_012 FOV (mm): 1.7 Crossed polars
Carbonate veinlet.

DDH08-05@232 *Lithology* ash-tuff *Assemblage* *AI:* 1

Hand Specimen White and orange-tan, finely laminated ash with local convolutions, weakly to moderately magnetic.

Mode Mineralogy

%		Occurence
7	*Quartz*	volcaniclastic
15	*Plagioclase*	volcaniclastic
	Kspar	
	White Mica	
35	*Clay*	devitrification
	Carbonate	
	Biotite	
	Epidote	
5	*Chlorite*	devitrification
1	*Opaques*	volcaniclastic
	Fe-oxyhydrox	
	Jarosite	
5	*clasts/mudston*	clastic
20	*glass*	volcaniclastic
0		
0		

Texture 1 laminated *Structure*

Texture 2 spherulitic *Strength*

Grain Size very fine grained (>0.004<0.25 *Groundmass*

Ksp Stain

Modal Mineralogy Comments

Alternating light (plagioclase+/-quartz) and dark (glass and devitrification clay+/-chlorite) lamellae compose this welded tuff. Local mineral clasts are rotated into the flow lamination and deflect the lamination. Local discontinuous clastic (mud) layers.

Veins

	Mineral 1	*Mineral 2*	*Mineral 3*	*Envelope*
Vein 1	Quartz			
Vein 2				
Vein 3				

quartz veinlets <1 mm

Opaque Mineralogy

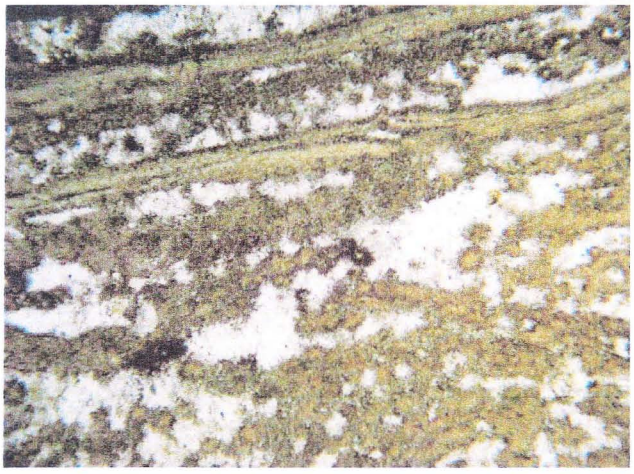
%	*Opaque*	*How*
	Hema	
0	*Mag*	
0	*Py*	
	Po	
0	*Cpy*	
	Moly	
	Asp	
	Sph	
	Gn	

Secondary Mineralogy

Mineral Intensity	*How*	*How 2*	*AI*
Wt Mic			
Carb.			
Clay			
Epidote			
Chlorite			
Biotite			
Kspar			
Albite			
Quartz	very weak		1
Jarosite			

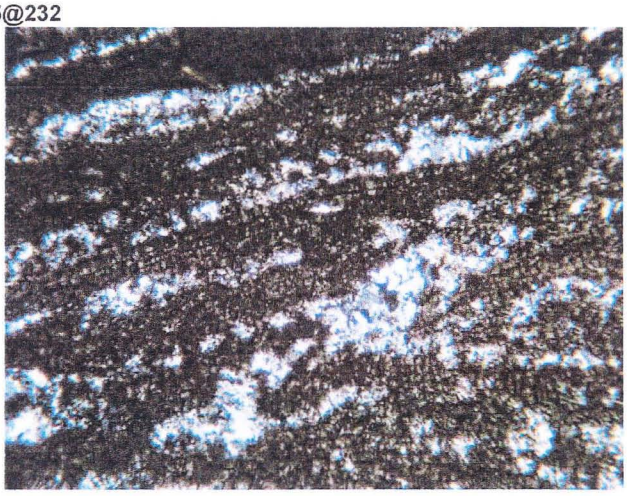
Alteration Comments

unaltered rock



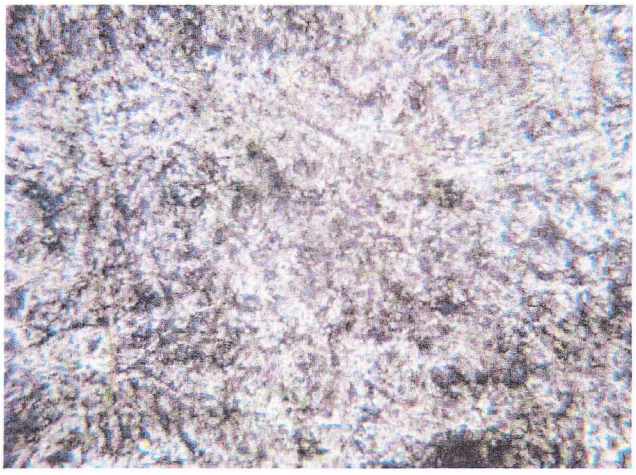
DDH08-05@232_001 FOV (mm): 6 Plane polarized light

Finely laminated volcanic layers.



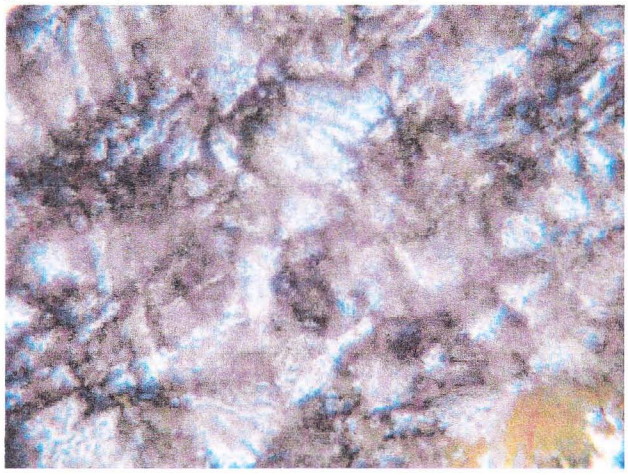
DDH08-05@232_002 FOV (mm): 6 Crossed polars

Same, under crosssed polars. Feldspars, quartz and fine-grained clay+/-chlorite are the main components.



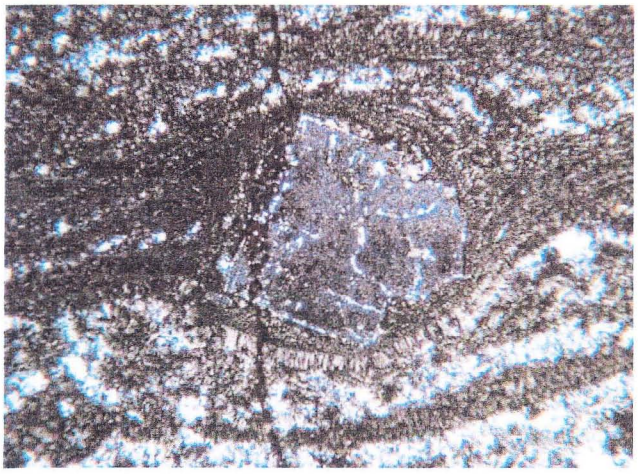
DDH08-05@232_003 FOV (mm): 0.4 Plane polarized light

Fine-grained clay-chlorite.



DDH08-05@232_004 FOV (mm): 0.4 Crossed polars

Same, under crossed polars. The radiating nature of the clay+/-chlorite-glass mixture becomes evident.

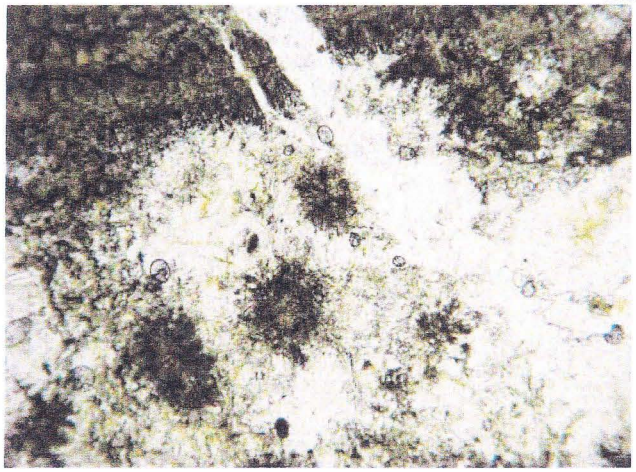


DDH08-05@232_005 FOV (mm): 6 Crossed polars

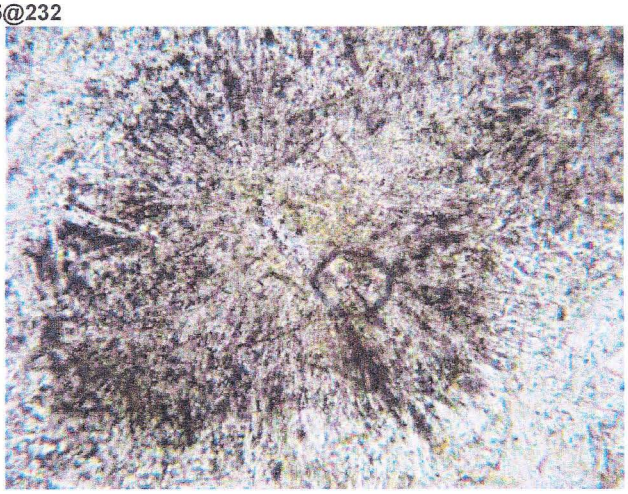
A mineral clast deflected became rotated in the flow lamination.

DDH08-05@232_006 FOV (mm): 1.7 Crossed polars

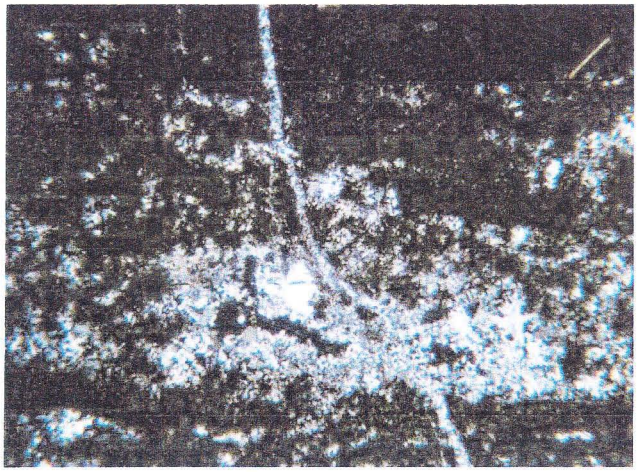
Fine plagioclase laths form the lighter lamellae.



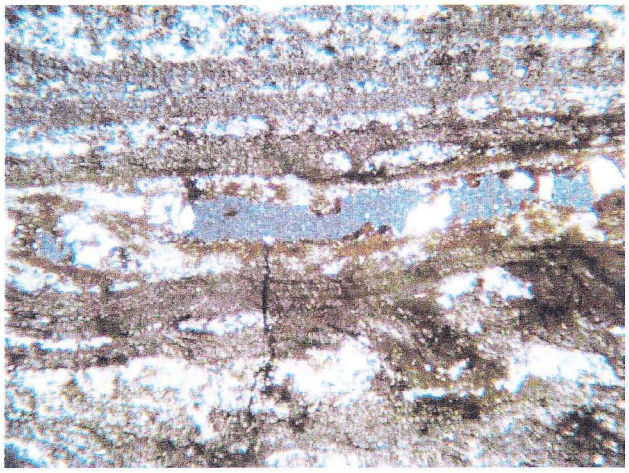
DDH08-05@232_007 FOV (mm): 1.7 Plane polarized light
Spherulites consisting of radial crystal fibres.



DDH08-05@232_008 FOV (mm): 0.4 Plane polarized light
Spherulite formed of radiating crystal fibres.



DDH08-05@232_009 FOV (mm): 6 Crossed polars
Quartz veinlet.



DDH08-05@232_010 FOV (mm): 6 Crossed polars
Clastic layer (dark grey, centre).

DDH08-05@293 *Lithology* Mafic Lapilli tuff *Assemblage* carbonate *AI:* 1

Hand Specimen Coarse-grained, clastic, flow laminated polymict debris flow, moderately magnetic.

Mode Mineralogy

%		Occurence
	Quartz	
10	Plagioclase	volcaniclastic
	Kspar	
	White Mica	
30	Clay	devitrification
1	Carbonate	hydrothermal1
	Biotite	
	Epidote	
	Chlorite	
	Opaques	
	Fe-oxyhydrox	
	Jarosite	
40	lithic clasts	volcaniclastic
20	glass	
0		
0		

Texture 1 pumice *Structure*

Texture 2 perlite *Strength*

Grain Size coarse grained (>2<16 mm) *Groundmass*

Ksp Stain not stained

Modal Mineralogy Comments

Volcaniclastic rock showing evidence of hot emplacement (perlite, welded pumice fragments). Abundant lithic clasts of various mineral compositions, mostly with glassy to partly devitrified groundmass. Local armoured lithic lapilli. Groundmass consists of devitrification clay and glass.

Veins

	Mineral 1	Mineral 2	Mineral 3	Envelope
Vein 1				
Vein 2				
Vein 3				

Opaque Mineralogy

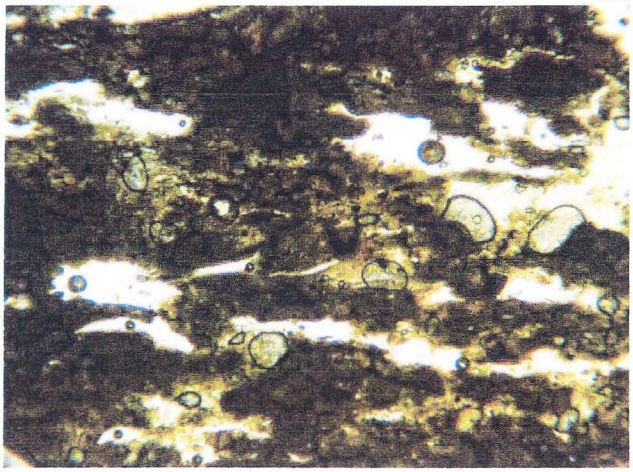
%	Opaque	How
	Hema	
0	Mag	
0	Py	
	Po	
0	Cpy	
	Moly	
	Asp	
	Sph	
	Gn	

Secondary Mineralogy

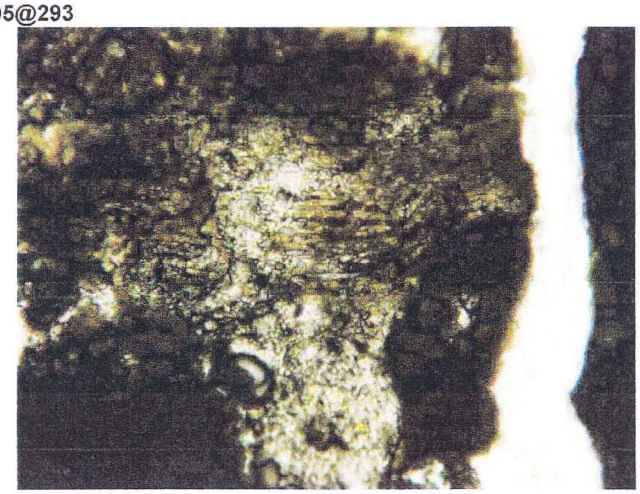
Mineral	Intensity	How	How 2	AI
Wt Mic				
Carb.	very weak	domainal		1
Clay				
Epidote				
Chlorite				
Biotite				
Kspar				
Albite				
Quartz				
Jarosite				

Alteration Comments

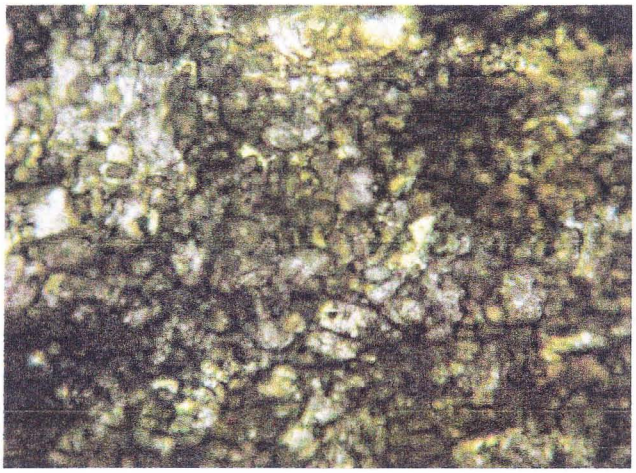
Local carbonate partly replacing mafic lithic clasts.



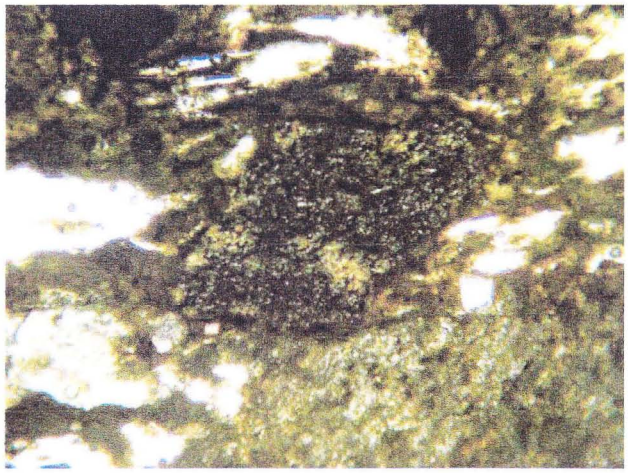
DDH08-05@293_001 FOV (mm): 6 Plane polarized light
Brown smectite-glass groundmass and volcaniclastic texture.



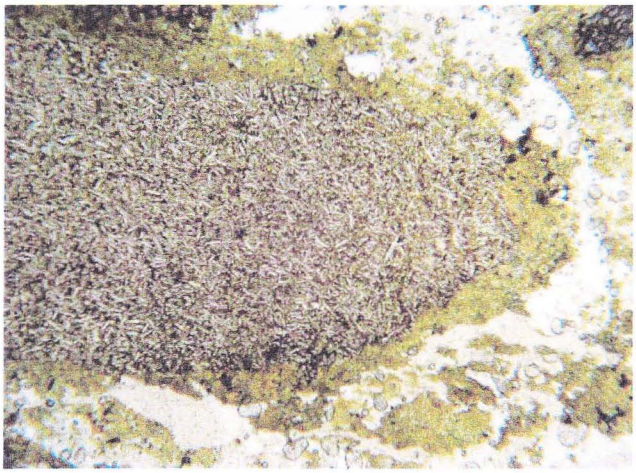
DDH08-05@293_002 FOV (mm): 1.7 Plane polarized light
Pumice tubes (centre).



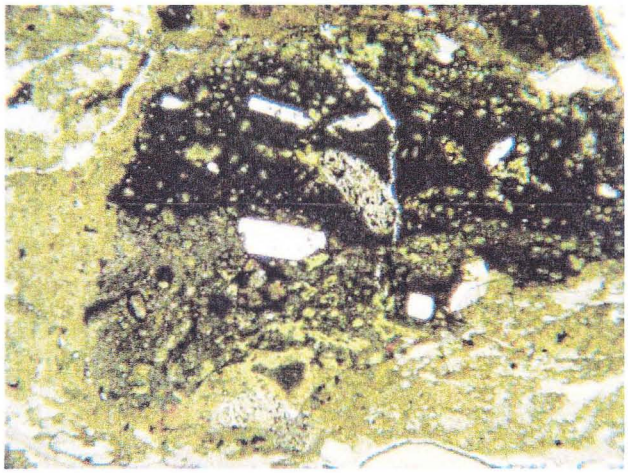
DDH08-05@293_003 FOV (mm): 1.7 Crossed polars
Perlitic texture (centre).



DDH08-05@293_004 FOV (mm): 6 Crossed polars
Subangular lithic clasts.



DDH08-05@293_005 FOV (mm): 6 Crossed polars
Armoured lapilli with trachitic texture.



DDH08-05@293_006 FOV (mm): 6 Crossed polars
Irregular lithic clast.

possibly volcaniclastic rock cooled slowly in a thick pile.

Hand Specimen Light grey, fine-grained rock, strongly magnetic, cut by narrow irregular black veinlets and by white carbonate veinlets.

Mode Mineralogy

%		Occurence
	Quartz	
50	*Plagioclase*	volcanic
	Kspar	
2	*White Mica*	hydrothermal1
8	*Clay*	devitrification
12	*Carbonate*	hydrothermal1
	Biotite	
	Epidote	
10	*Chlorite*	hydrothermal1+dev
7	*Opaques*	devitrification
	Fe-oxyhydrox	
	Jarosite	
10	*glass*	volcanic
0		
0		
0		

Texture 1 trachitic *Structure*

Texture 2 porphyritic *Strength*

Grain Size medium grained (>0.25<2mm) *Groundmass* medium grained (

Ksp Stain not stained

Modal Mineralogy Comments

Fine-grained feldspar>glass>clay -chlorite form the groundmass. Sparse phenocrysts consist of euhedral to subhedral plagioclase grains that are strongly clay altered.

Veins

	Mineral 1	*Mineral 2*	*Mineral 3*	*Envelope*
Vein 1	Chlorite			
Vein 2				
Vein 3				

chlorite-carbonate fracture-fill veinlets

Opaque Mineralogy

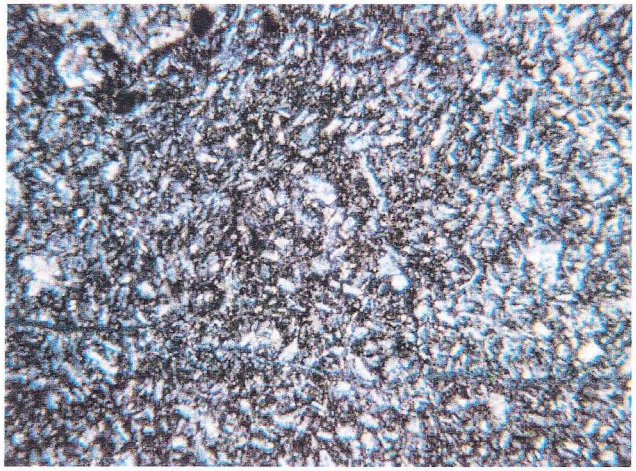
%	*Opaque*	*How*
	Hema	
0	*Mag*	
0	*Py*	
	Po	
0	*Cpy*	
	Moly	
	Asp	
	Sph	
	Gn	

Secondary Mineralogy

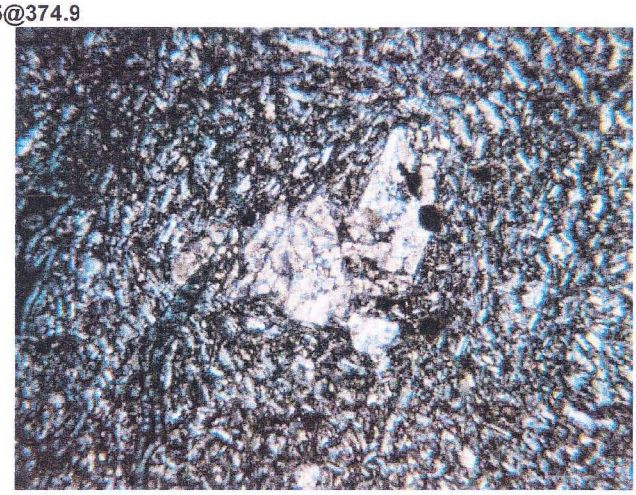
Mineral	*Intensity*	*How*	*How 2*	*AI*
Wt Mic	weak	pseudomorph		2
Carb.	strong	pseudomorph		4
Clay				
Epidote				
Chlorite	strong	pervasive	vein hosted	2
Biotite				
Kspar				
Albite				
Quartz				
Jarosite				

Alteration Comments

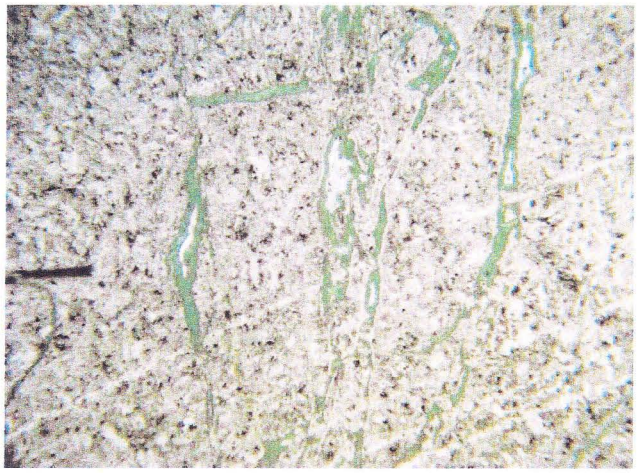
Strong pseudomorphic carbonate and lesser white mica replace feldspars in the groundmass and forming phenocrysts. Strong pervasive devitrification chlorite after groundmass.



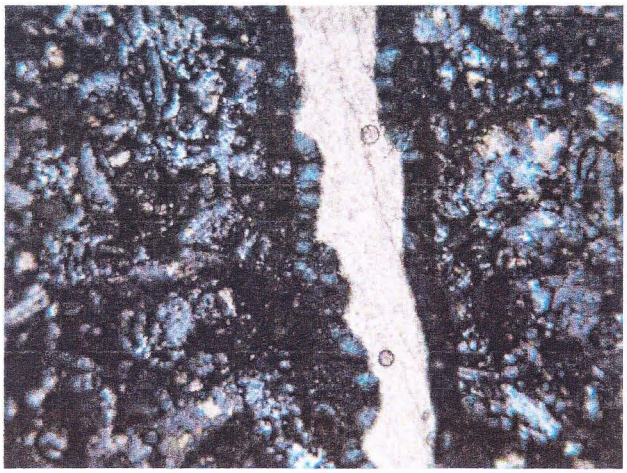
DDH08-05@374.9_001 FOV (mm): 6 Crossed polars
Fine-grained trachitic volcanic texture.



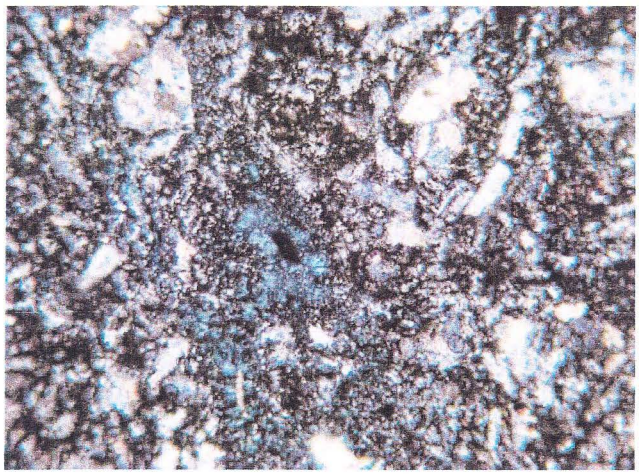
DDH08-05@374.9_002 FOV (mm): 6 Crossed polars
Porphyritic texture defined by euhedral plagioclase grains that are strongly replaced by carbonate.



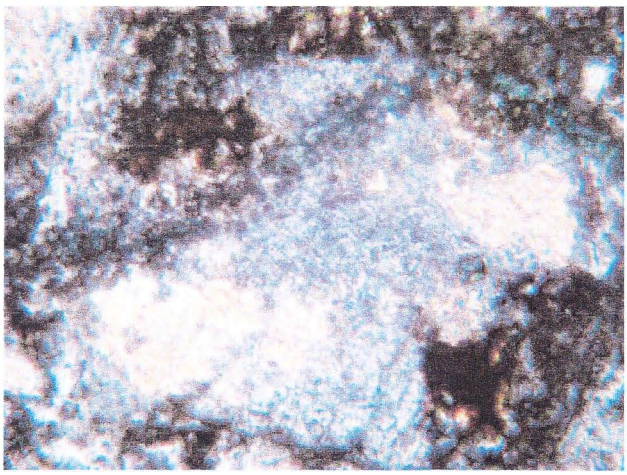
DDH08-05@374.9_003 FOV (mm): 6 Plane polarized light
Chlorite veinlet network.



DDH08-05@374.9_004 FOV (mm): 1.7 Crossed polars
Carbonate fills empty space left in chlorite veinlet.



DDH08-05@374.9_005 FOV (mm): 1.7 Crossed polars
Carbonate and chlorite strongly replace the groundmass.



DDH08-05@374.9_006 FOV (mm): 0.4 Crossed polars
Feldspars in the groundmass are strongly replaced by carbonate (beige, right) and lesser white mica (yellow-white birrefringence, lower left).

DDH08-06@110.5 *Lithology* intermediate tuff *Assemblage* *Al:*

Hand Specimen Light pinki-grey, spherulitic (perlitic?) and vesicular volcanic rock. A dark layer is strongly magnetic

Mode Mineralogy

%		Occurence
	Quartz	
25	Plagioclase	volcaniclastic
	Kspar	
	White Mica	
20	Clay	volcaniclastic/devit
	Carbonate	
	Biotite	
	Epidote	
20	Chlorite	devitrification
5	Opaques	volcaniclastic
	Fe-oxyhydrox	
	Jarosite	
5	Palagonite	devitrification
20	glass	volcaniclastic
5	lithic fragment	volcaniclastic
0		

Texture 1 amygdaloidal *Structure*

Texture 2 spheroidal *Strength*

Grain Size very fine grained (>0.004<0.25 *Groundmass* very fine grained

Ksp Stain

Modal Mineralogy Comments

Fine-grained devitrification products (chlorite-clay and lesser palagonite) and feldspars form convoluted lamellae that contain sparse lithic clasts and amygdales. Chlorite-clay locally defines spherulites.

Veins

	Mineral 1	Mineral 2	Mineral 3	Envelope
Vein 1				
Vein 2				
Vein 3				

Opaque Mineralogy

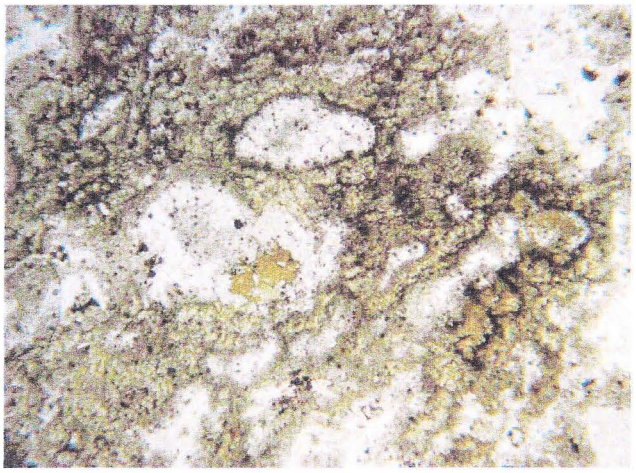
%	Opaque	How
	Hema	
0	Mag	
0	Py	
	Po	
0	Cpy	
	Moly	
	Asp	
	Sph	
	Gn	

Secondary Mineralogy

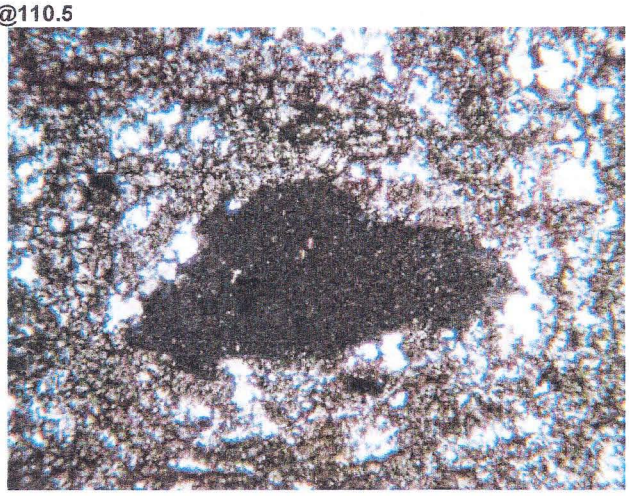
Mineral	Intensity	How	How 2	AI
Wt Mic				
Carb.				
Clay				
Epidote				
Chlorite				
Biotite				
Kspar				
Albite				
Quartz				
Jarosite				

Alteration Comments

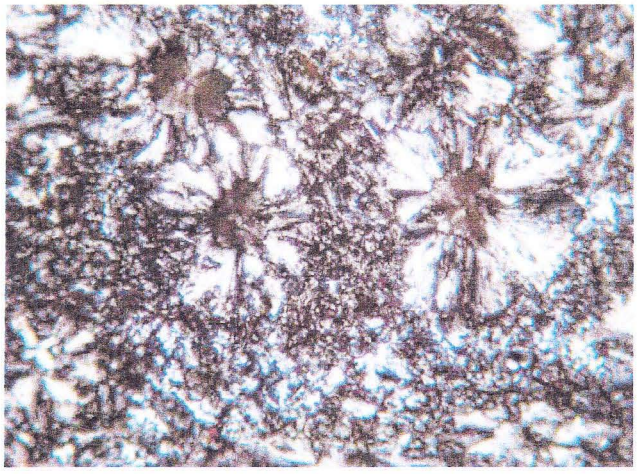
unaltered



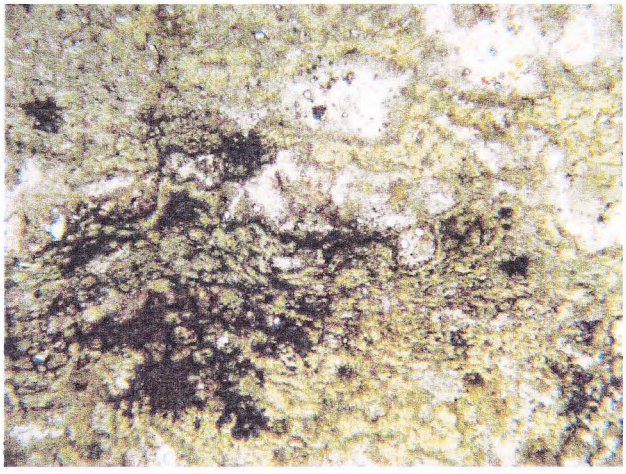
DDH08-06@110.5_001 FOV (mm): 6 Plane polarized light
Amygdaloidal texture in glassy volcaniclastic rock.



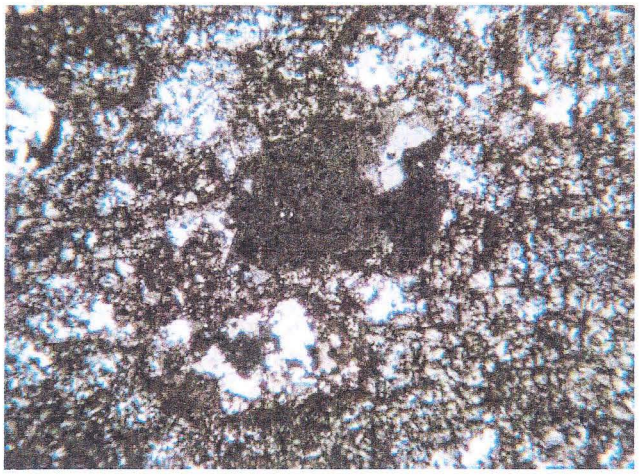
DDH08-06@110.5_002 FOV (mm): 6 Crossed polars
Subrounded lithic fragment.



DDH08-06@110.5_003 FOV (mm): 1.7 Crossed polars
Spherulitic texture defined by fine-grained radiating chlorite-clay.



DDH08-06@110.5_004 FOV (mm): 6 Plane polarized light
Convoluted lamellae with abundant black fine-grained magnetite.



DDH08-06@110.5_005 FOV (mm): 6 Crossed polars
Angular lithic clast.

DDH08-06@110.5_006 FOV (mm): 1.7 Crossed polars
Spherulitic texture defined by clay-glass core and feldspar rim.

DDH08-06@112.5 *Lithology* intermediate tuff *Assemblage* *Al:*

Hand Specimen Light white-grey, amygdaloidal fine-grained volcanic rock. Domainal dark minerals are strongly magnetic

Mode Mineralogy

%		Occurence
	Quartz	
25	Plagioclase	volcaniclastic
	Kspar	
	White Mica	
30	Clay	volcaniclastic/devit
	Carbonate	
	Biotite	
	Epidote	
20	Chlorite	devitrification
5	Opaques	volcaniclastic
3	Fe-oxyhydrox	volcaniclastic
	Jarosite	
2	Palagonite	devitrification
20	glass	
0		
0		

Texture 1 amygdaloidal *Structure*

Texture 2 spheroidal *Strength*

Grain Size medium grained (>0.25<2mm) *Groundmass*

Ksp Stain not stained

Modal Mineralogy Comments

Fine-grained devitrification products (chlorite-clay and lesser palagonite) and feldspars form convoluted lamellae that contain sparse lithic clasts and abundant amygdales. Chlorite-clay defining spherulites is ubiquitous.

Veins

	Mineral 1	Mineral 2	Mineral 3	Envelope
Vein 1				
Vein 2				
Vein 3				

Opaque Mineralogy

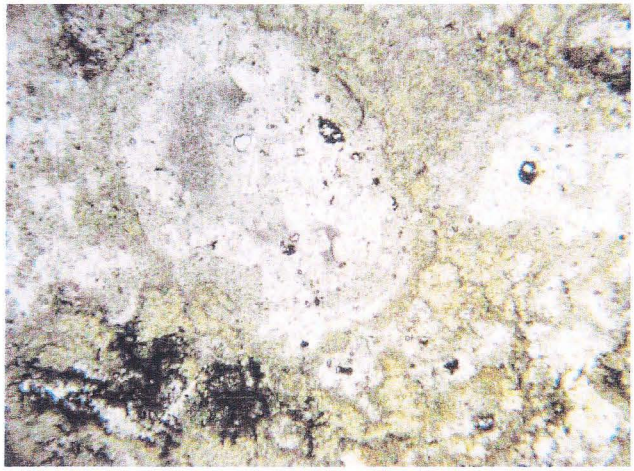
%	Opaque	How
	Hema	
0	Mag	
0	Py	
	Po	
0	Cpy	
	Moly	
	Asp	
	Sph	
	Gn	

Secondary Mineralogy

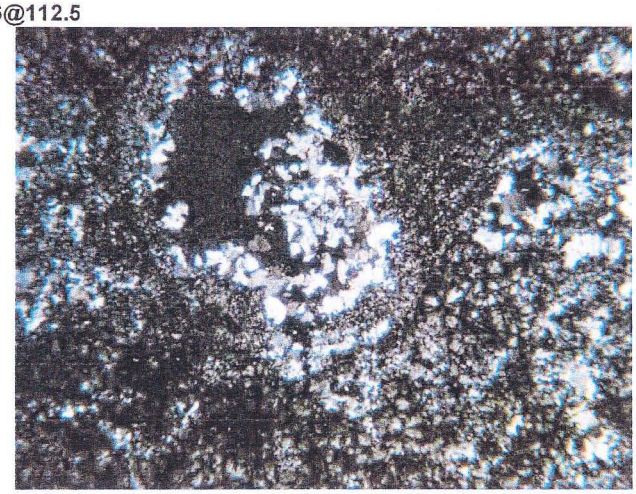
Mineral	Intensity	How	How 2	AI
Wt Mic				
Carb.				
Clay				
Epidote				
Chlorite				
Biotite				
Kspar				
Albite				
Quartz				
Jarosite				

Alteration Comments

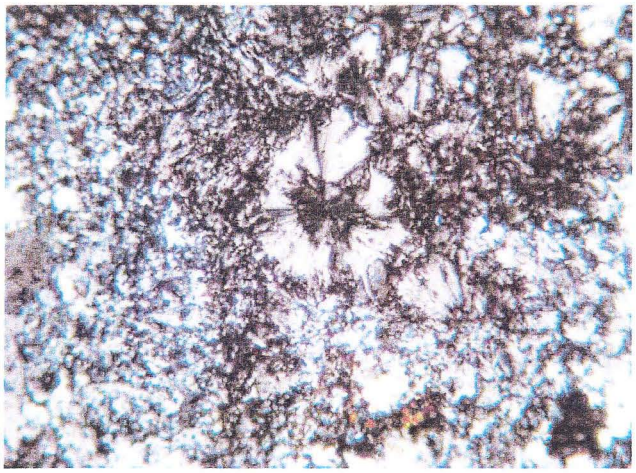
unaltered



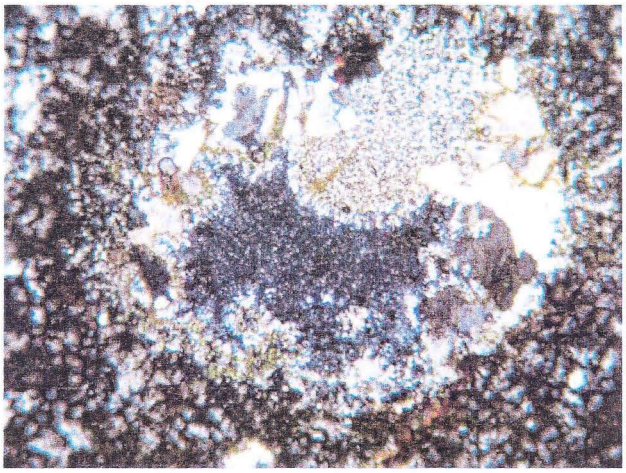
DDH08-06@112.5_001 FOV (mm): 6 Plane polarized light
Volcaniclastic and amygdaloidal textures.



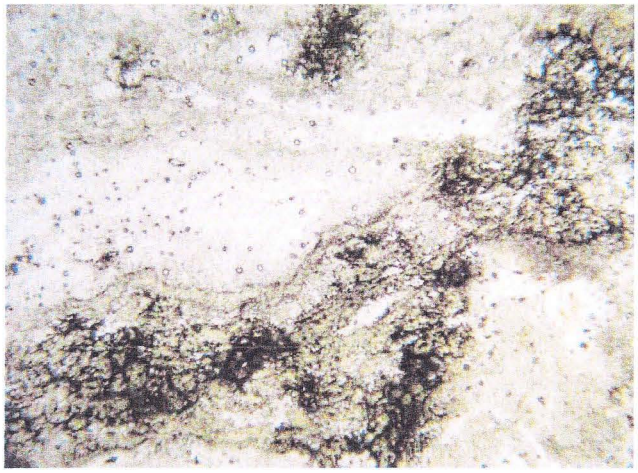
DDH08-06@112.5_002 FOV (mm): 6 Crossed polars
Same, under crossed polars. Kaolinite clay (dark core) and flespars fill the amygdale.



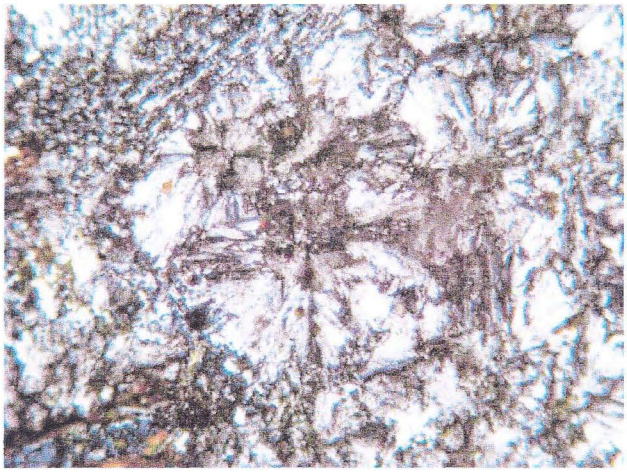
DDH08-06@112.5_003 FOV (mm): 1.7 Crossed polars
Spherulitic texture defined by radiating chlorite-clay.



DDH08-06@112.5_004 FOV (mm): 1.7 Crossed polars
Clay and feldspars fill an amygdale.



DDH08-06@112.5_005 FOV (mm): 6 Plane polarized light
Volcaniclastic texture.



DDH08-06@112.5_006 FOV (mm): 1.7 Crossed polars
Spheroidal texture.

DDH08-06@151 *Lithology* intermediate lapilli-ash-tuff *Assemblage* *Al:*

Hand Specimen Finely laminated, white-yellow and brown, fine-grained ash, weakly magnetic.

Mode Mineralogy

%		Occurence
	Quartz	
35	Plagioclase	volcaniclastic
	Kspar	
	White Mica	
20	Clay	volcaniclastic/devit
	Carbonate	
	Biotite	
	Epidote	
25	Chlorite	devitrification
2	Opaques	volcaniclastic
	Fe-oxyhydrox	
	Jarosite	
1	Palagonite	devitrification
18	glass	volcaniclastic
0		
0		

Texture 1 spherulitic *Structure*

Texture 2 *Strength*

Grain Size very fine grained (>0.004<0.25 *Groundmass* very fine grained

Ksp Stain not stained

Modal Mineralogy Comments

Fine-grained devitrification products (chlorite-clay and lesser palagonite) and feldspars form convoluted lamellae that contain sparse lithic clasts. Chlorite-clay defining spherulites is ubiquitous but very fine-grained. Magnetite occrus along specific lamellae.

Veins

	Mineral 1	Mineral 2	Mineral 3	Envelope
Vein 1				
Vein 2				
Vein 3				

Opaque Mineralogy

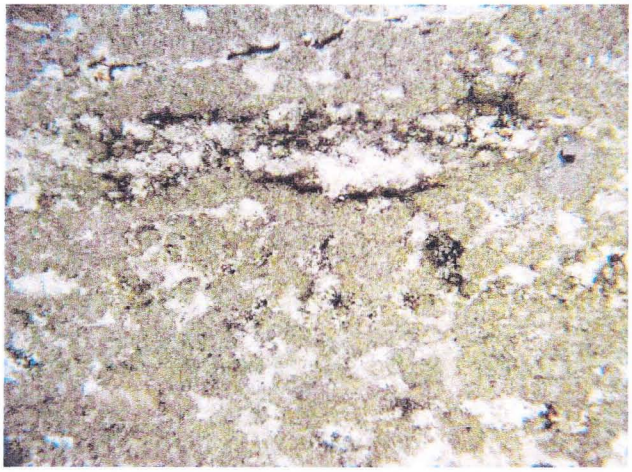
%	Opaque	How
	Hema	
0	Mag	
0	Py	
	Po	
0	Cpy	
	Moly	
	Asp	
	Sph	
	Gn	

Secondary Mineralogy

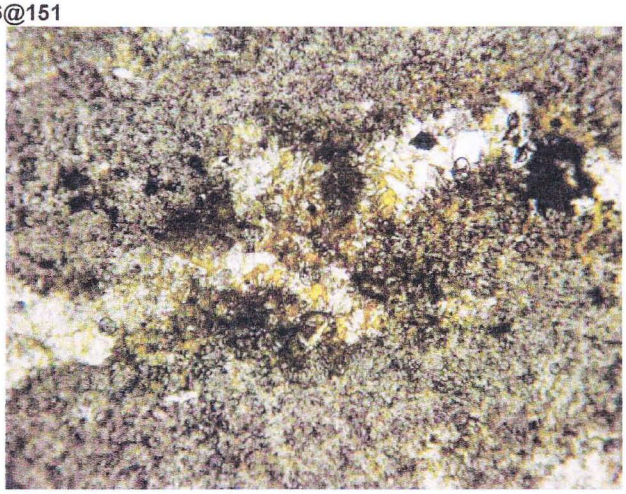
Mineral	Intensity	How	How 2	AI
Wt Mic				
Carb.				
Clay				
Epidote				
Chlorite				
Biotite				
Kspar				
Albite				
Quartz				
Jarosite				

Alteration Comments

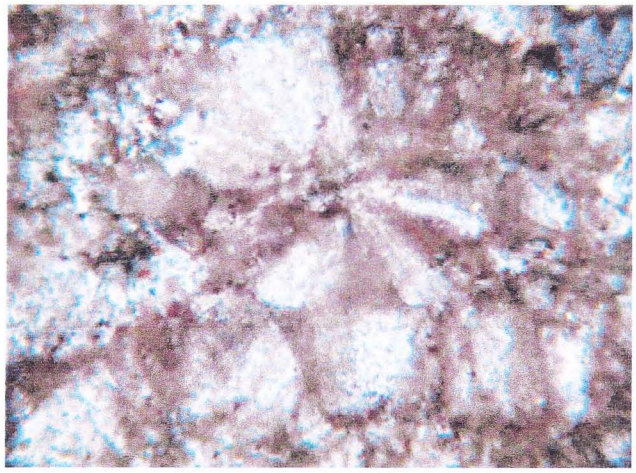
unaltered



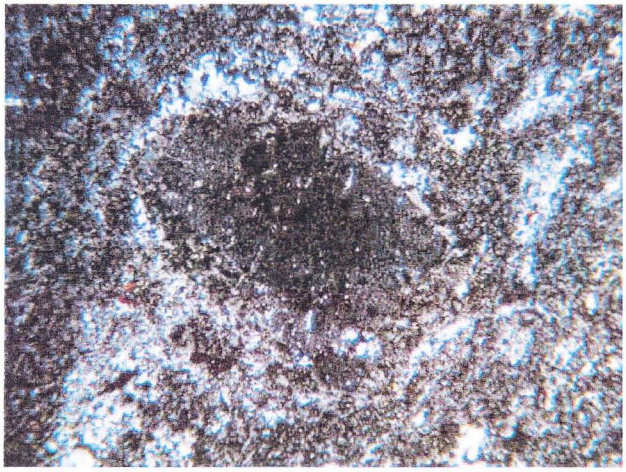
DDH08-06@151_001 FOV (mm): 6 Plane polarized light
Finely laminated welded ash-tuff.



DDH08-06@151_002 FOV (mm): 6 Plane polarized light
Yellow palagonite occurs locally.

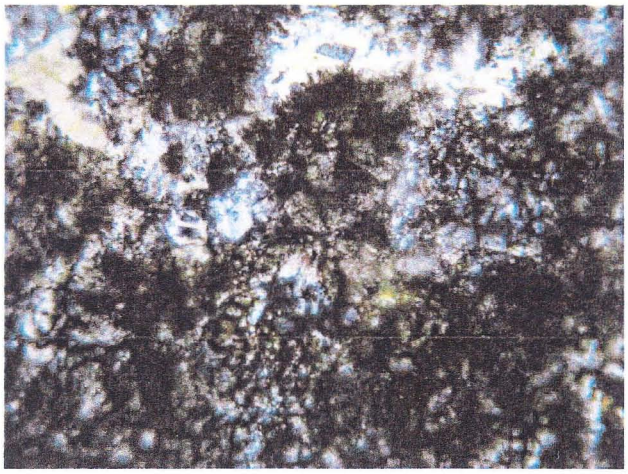


DDH08-06@151_003 FOV (mm): 0.4 Crossed polars
Fine-grained spherulitic texture defined by radiating chlorite-clay.



DDH08-06@151_004 FOV (mm): 6 Crossed polars
Rare rounded lithic clast.

DDH08-06@151_005 FOV (mm): 1.7 Plane polarized light
Angular lithic clast.



DDH08-06@151_006 FOV (mm): 1.7 Crossed polars
Fine-grained spherulitic texture.

DDH08-06@159 *Lithology* intermediate lapilli-ash-tuff *Assemblage* *Al:*

Hand Specimen Finely laminated, cream-white and brown, fine-grained ash, weakly magnetic.

Mode Mineralogy

%		Occurence
	Quartz	
40	Plagioclase	volcaniclastic
	Kspar	
	White Mica	
15	Clay	volcaniclastic/devit
	Carbonate	
	Biotite	
	Epidote	
20	Chlorite	devitrification
2	Opaques	volcaniclastic
1	Fe-oxyhydrox	volcaniclastic
	Jarosite	
1	Palagonite	devitrification
18	glass	volcaniclastic
0		
0		

Texture 1 *Structure*

Texture 2 *Strength*

Grain Size *Groundmass* very fine grained

Ksp Stain not stained

Modal Mineralogy Comments

Fine-grained devitrification products (chlorite-clay and lesser palagonite) and feldspars form convoluted lamellae that contain sparse lithic clasts and define lamellae of alternating light and dark colours.

Veins

	Mineral 1	Mineral 2	Mineral 3	Envelope
Vein 1				
Vein 2				
Vein 3				

Opaque Mineralogy

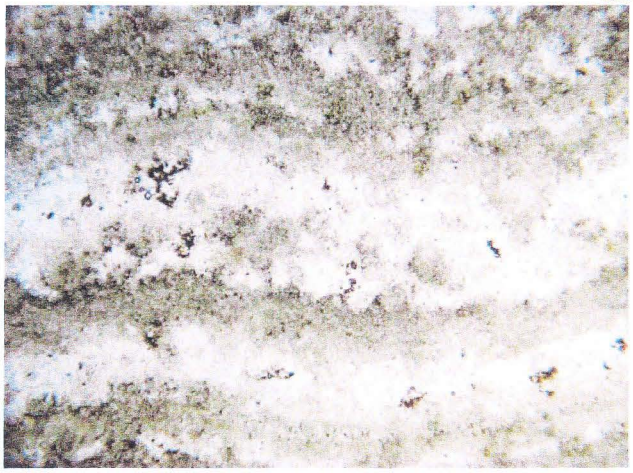
%	Opaque	How
	Hema	
0	Mag	
0	Py	
	Po	
0	Cpy	
	Moly	
	Asp	
	Sph	
	Gn	

Secondary Mineralogy

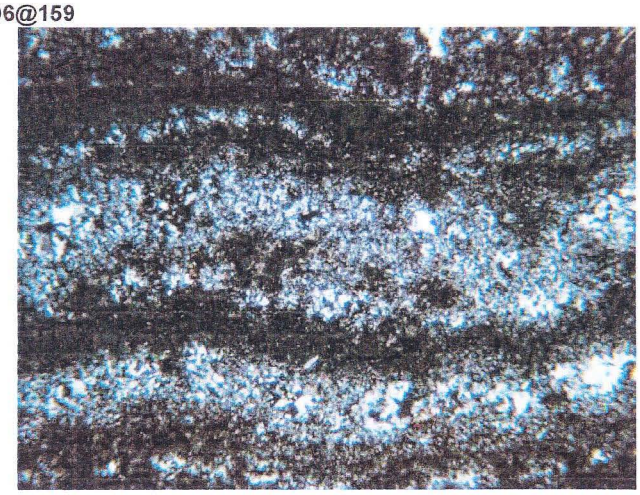
Mineral Intensity	How	How 2	Al
Wt Mic			
Carb.			
Clay			
Epidote			
Chlorite			
Biotite			
Kspar			
Albite			
Quartz			
Jarosite			

Alteration Comments

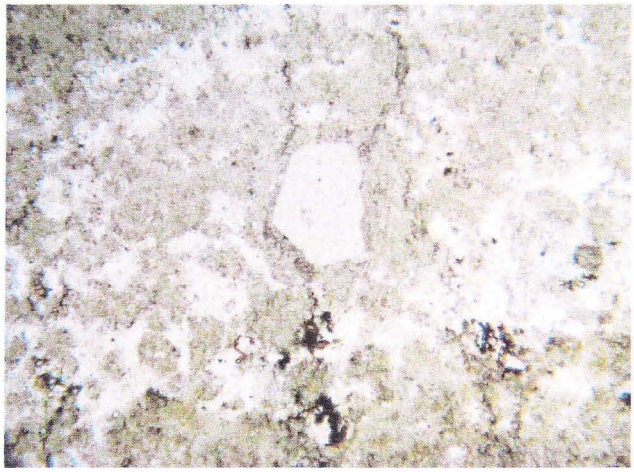
unaltered



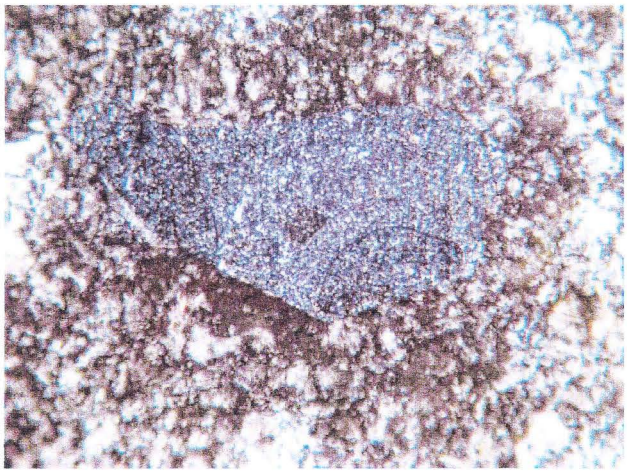
DDH08-06@159_001 FOV (mm): 6 Plane polarized light
Finely laminated ash.



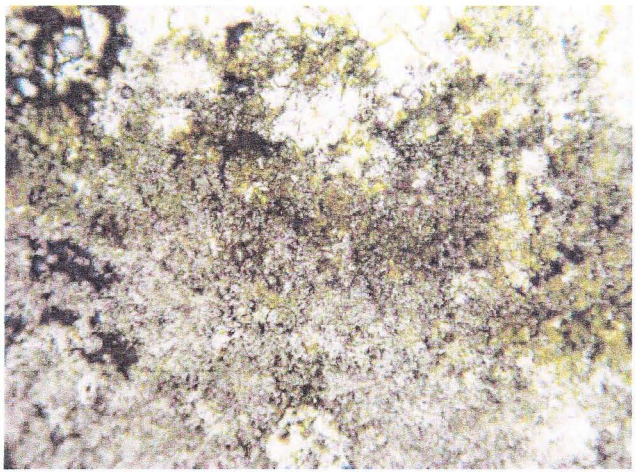
DDH08-06@159_002 FOV (mm): 6 Crossed polars
Same, under crossed polars. Light lamellae are feldspathic and dark lamellae are clay-chlorite-glass.



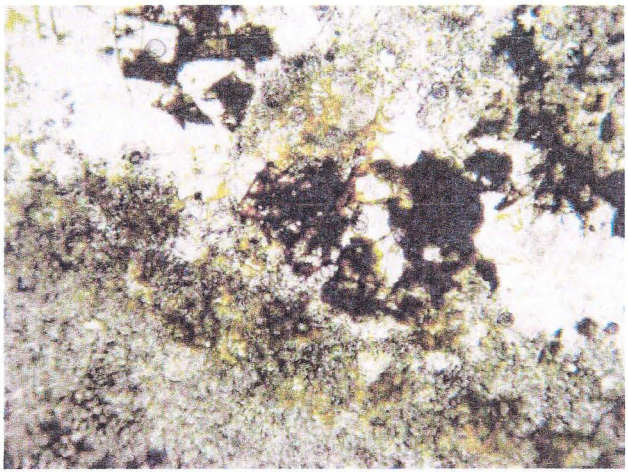
DDH08-06@159_003 FOV (mm): 6 Plane polarized light
Rare angular lithic fragment.



DDH08-06@159_004 FOV (mm): 1.7 Crossed polars
Subangular lithic fragment.



DDH08-06@159_005 FOV (mm): 1.7 Plane polarized light
Locally abundant yellow palagonite.



DDH08-06@159_006 FOV (mm): 1.7 Plane polarized light
Red-brown Fe-oxyhydroxides and yellow palagonite.

DDH08-06@203 **Lithology** Mafic Ash tuff **Assemblage** supergene **AI:** 9

Brecciated and healed by carbonate-brochantite-clay-albite

Hand Specimen Brown, very fine-grained angular clasts in a deep green and white (carbonate) cement.

Mode Mineralogy

%		Occurence
	Quartz	
35	*Plagioclase*	volcaniclastic
	Kspar	
	White Mica	
25	*Clay*	devitrification+hydr
5	*Carbonate*	hydrothermal1
	Biotite	
	Epidote	
	Chlorite	
	Opaques	
	Fe-oxyhydrox	
	Jarosite	
30	*Palagonite*	devitrification
3	*brochantite*	hydrothermal1
2	*Albite*	hydrothermal1
0		

Texture 1 trachitic *Structure*

Texture 2 brecciated *Strength*

Grain Size very fine grained (>0.004<0.25 *Groundmass* very fine grained

Ksp Stain not stained

Modal Mineralogy Comments

Red-brown to orange palagonite-clay and very fine-grained plagioclase laths define a trachitic texture to this fine-grained volcaniclastic rock. Locally the rock is fractured and brecciated, and healed by carbonate-albite-brochantite.

Veins

	Mineral 1	*Mineral 2*	*Mineral 3*	*Envelope*
Vein 1				
Vein 2				
Vein 3				

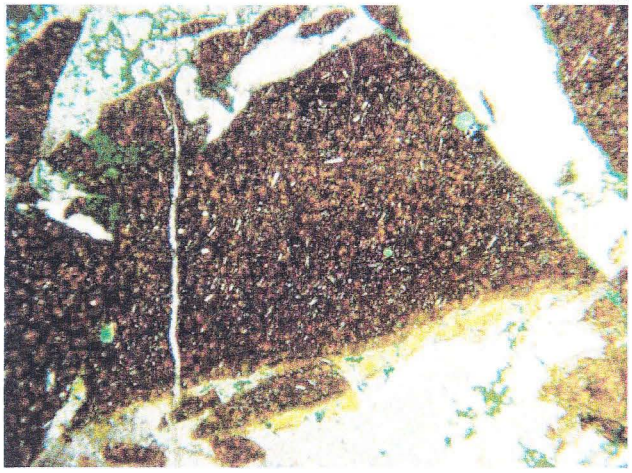
Opaque Mineralogy

%	Opaque	How
	Hema	
0	*Mag*	
0	*Py*	
	Po	
0	*Cpy*	
	Moly	
	Asp	
	Sph	
	Gn	

Secondary Mineralogy

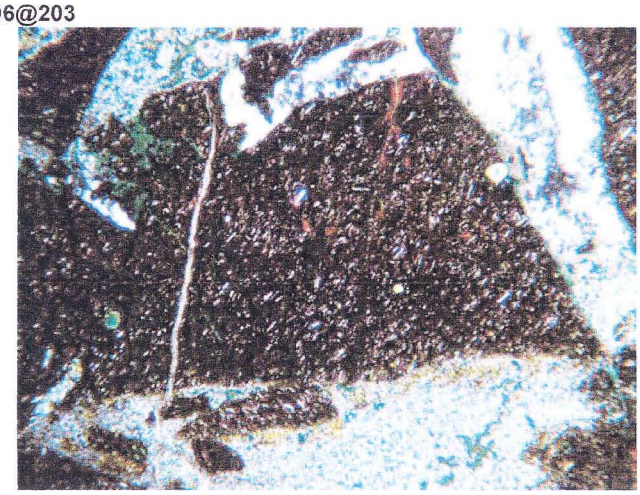
Mineral	*Intensity*	*How*	*How 2*	*AI*
Wt Mic				
Carb.	moderate	fracture filled		3
Clay				
Epidote				
Chlorite				
Biotite				
Kspar				
Albite	moderate	fracture filled		3
Quartz				
Jarosite				
atacamite		fracture filled		3

Alteration Comments



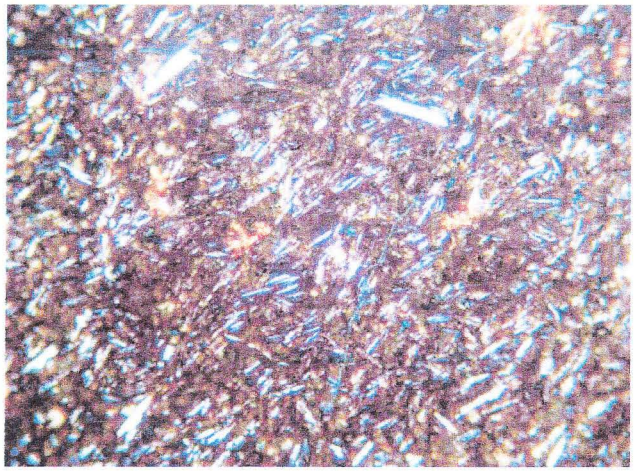
DDH08-06@203_001 FOV (mm): 6 Plane polarized light

Red-brown angular fine-grained volcaniclastic clast cemented by deep green brochantite and clear carbonate-feldspar.



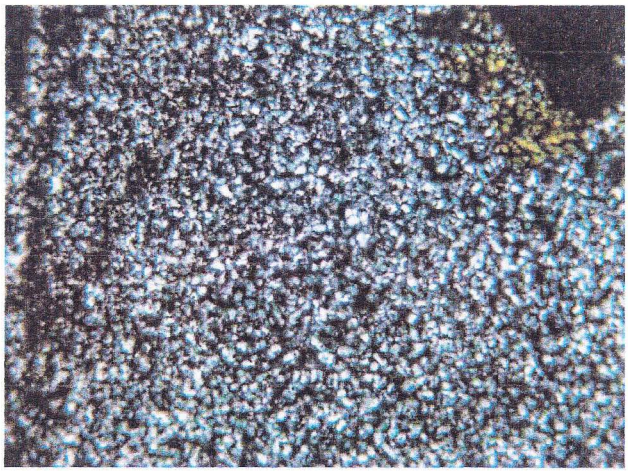
DDH08-06@203_002 FOV (mm): 6 Crossed polars

Same, under crossed polars.



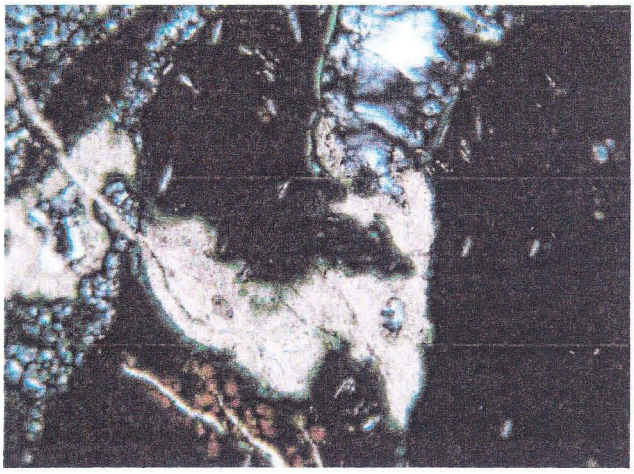
DDH08-06@203_003 FOV (mm): 1.7 Crossed polars

Trachitic texture in clast.



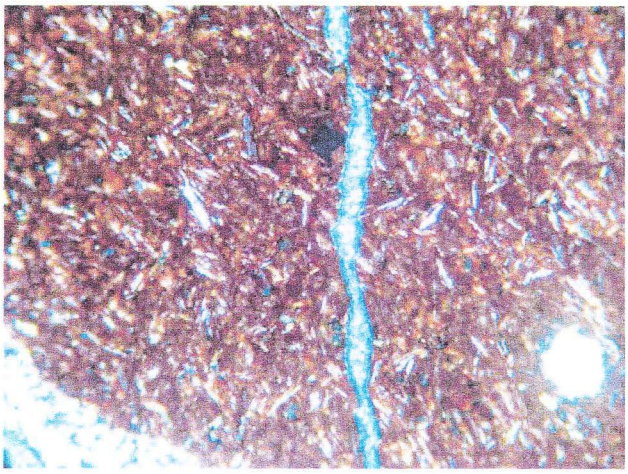
DDH08-06@203_004 FOV (mm): 1.7 Crossed polars

Fine-grained clay-brochantite cement.



DDH08-06@203_005 FOV (mm): 1.7 Crossed polars

Green brochantite, beige carbonate (calcite) and white to grey feldspars (albite?) cement.



DDH08-06@203_006 FOV (mm): 1.7 Crossed polars

Green brochantite veinlet.

DDH08-06@23 *Lithology* volcaniclastic conglomerat *Assemblage* *AI:*

Clasts of andesitic to basaltic composition.

Hand Specimen Coarse-grained, strongly magnetic grey-brown and red clastic rock with subangular fragments <3.5 cm wide.

Mode Mineralogy

%		Occurence
2	*Quartz*	volcaniclastic
20	*Plagioclase*	volcaniclastic
	Kspar	
	White Mica	
45	*Clay*	volcaniclastic/devit
	Carbonate	
	Biotite	
	Epidote	
	Chlorite	
	Opaques	
25	*Fe-oxyhydrox*	volcaniclastic/devit
	Jarosite	
8	*Palagonite*	devitrification
0		
0		
0		

Texture 1 clastic *Structure*

Texture 2 trachitic *Strength*

Grain Size very coarse grained (>16mm) *Groundmass* very fine grained

Ksp Stain not stained

Modal Mineralogy Comments

Subangular clasts of porphyritic volcaniclastic rocks of andesitic to basaltic compositions up to 4 cm wide are cemented by red-brown Fe-oxyhydroxide+/-palagonite. The rock is clast-supported. Clast have fine-grained trachitic groundmass made of feldspar laths intergrown with palagonite, clay (smectite), Fe-oxyhydroxides and glass.

Veins

	Mineral 1	*Mineral 2*	*Mineral 3*	*Envelope*
Vein 1				
Vein 2				
Vein 3				

Opaque Mineralogy

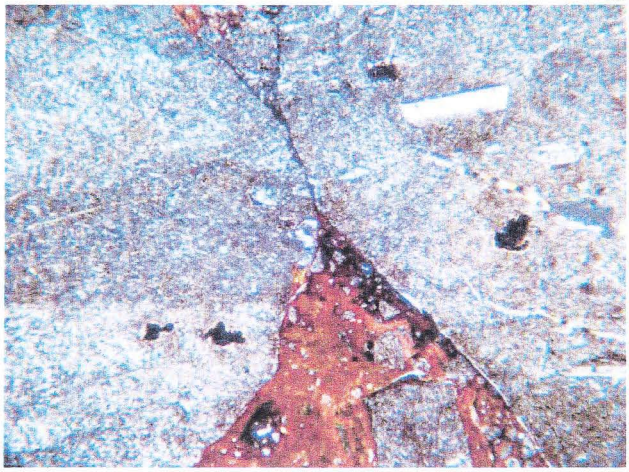
%	*Opaque*	*How*
	Hema	
0	*Mag*	
0	*Py*	
	Po	
0	*Cpy*	
	Moly	
	Asp	
	Sph	
	Gn	

Secondary Mineralogy

Mineral	*Intensity*	*How*	*How 2*	*AI*
Wt Mic				
Carb.				
Clay				
Epidote				
Chlorite				
Biotite				
Kspar				
Albite				
Quartz				
Jarosite				

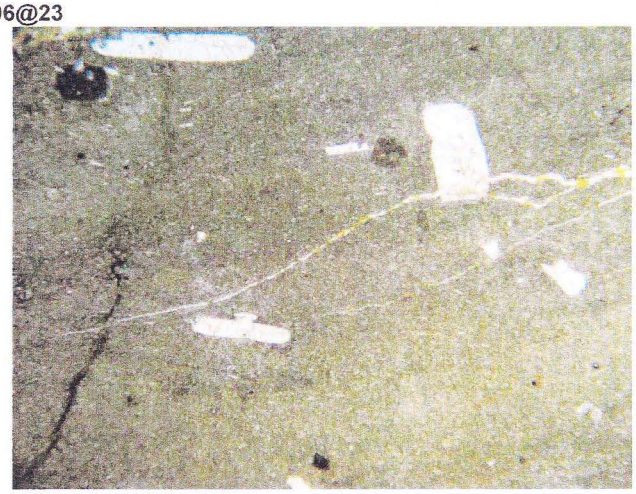
Alteration Comments

unaltered



DDH08-06@23_001 FOV (mm): 6 Crossed polars

Trachitic, porphyritic and clastic texture in subrounded to subangular clasts and red Fe-oxyhydroxide cement.

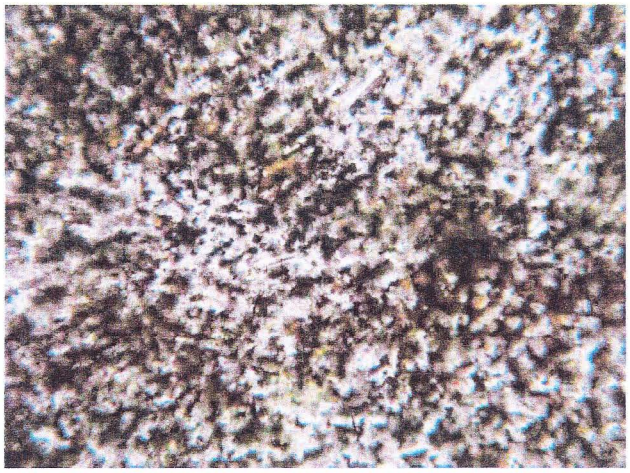


DDH08-06@23_002 FOV (mm): 6 Plane polarized light

Porphyritic texture in large fine-grained volcanic clast.

DDH08-06@23_003 FOV (mm): 1.7 Crossed polars

Red-brown Fe-oxyhydroxide and yellow-orange palagonite cement.

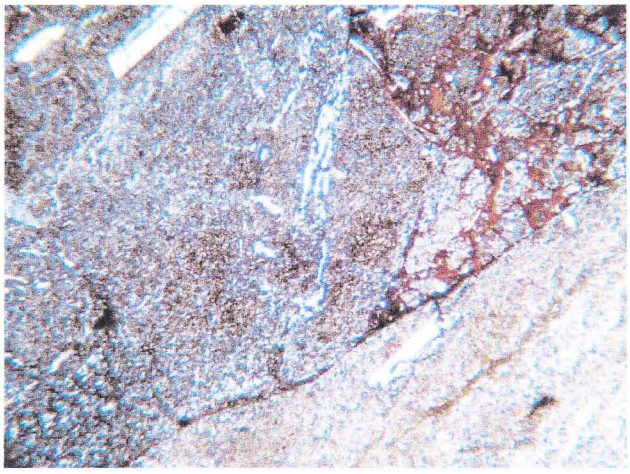


DDH08-06@23_004 FOV (mm): 0.4 Crossed polars

Trachitic texture, abundant Fe-oxyhydroxides and palagonite in fine-grained clast.

DDH08-06@23_005 FOV (mm): 1.7 Crossed polars

Fracture fill yellow-orange palagonite-smectite.



DDH08-06@23_006 FOV (mm): 6 Crossed polars

Discontinuous feldspar-healed veinlets.

DDH08-07@115 *Lithology* Mafic Lapilli tuff *Assemblage* *AI:* 1

Hand Specimen Coarse-grained polymict clastic texture with sparse angular clasts <1.5 cm wide supporte by a mauve aphanitic matrix, weakly magnetic.

Mode Mineralogy

%		Occurence
	Quartz	
30	Plagioclase	volcaniclastic
	Kspar	
	White Mica	
15	Clay	weathering
	Carbonate	
	Biotite	
	Epidote	
	Chlorite	
	Opaques	
	Fe-oxyhydrox	
	Jarosite	
15	Palagonite	devitrification
10	glass	volcaniclastic
35	lithic clasts	volcaniclastic
0		

Texture 1 trachitic *Structure*

Texture 2 porphyroclastic *Strength*

Grain Size medium grained (>0.25<2mm) *Groundmass* medium grained (

Ksp Stain not stained

Modal Mineralogy Comments

Medium-grained trachitic groundmass composed of fine-grained plagioclase laths, glass, yellow-orange palagonite and clay (kaolinite). The groundmass supports subangular lithic clasts < 1.5 cm wide, of various volcaniclastic compositions.

Veins

	Mineral 1	Mineral 2	Mineral 3	Envelope
Vein 1				
Vein 2				
Vein 3				

Opaque Mineralogy

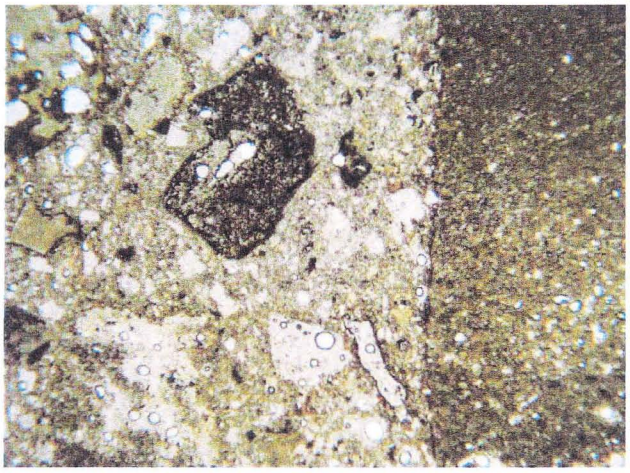
%	Opaque	How
	Hema	
0	Mag	
0	Py	
	Po	
0	Cpy	
	Moly	
	Asp	
	Sph	
	Gn	

Secondary Mineralogy

	Mineral	Intensity	How	How 2	AI
	Wt Mic				
	Carb.				
	Clay	moderate	pervasive		1
	Epidote				
	Chlorite				
	Biotite				
	Kspar				
	Albite				
	Quartz				
	Jarosite				

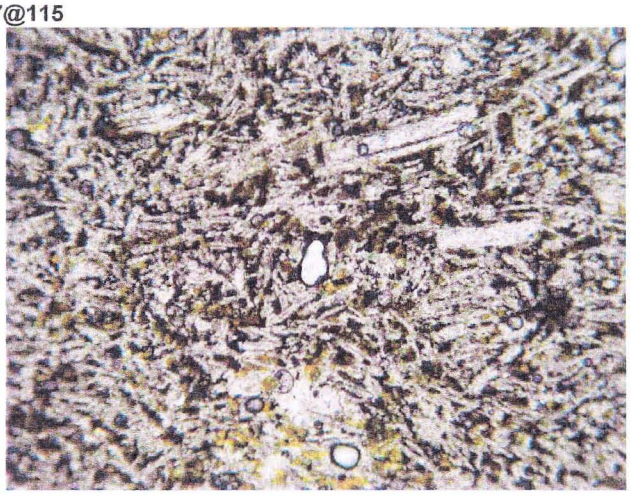
Alteration Comments

Moderate clay, likely a weathering product of plagioclase



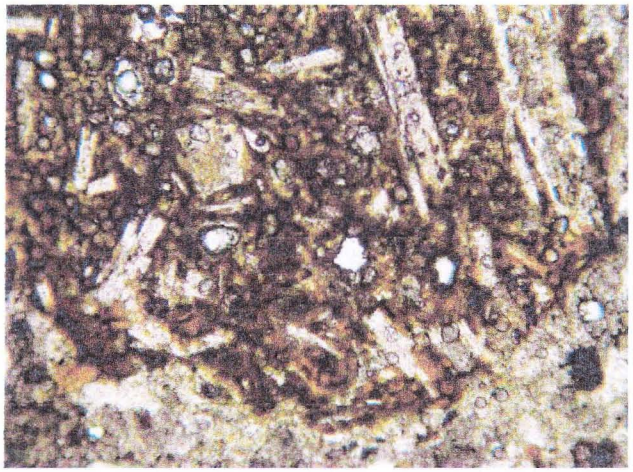
DDH08-07@115_001 FOV (mm): 6 Plane polarized light

Trachitic texture in the matrix and abundant subangular clasts of different compositions.



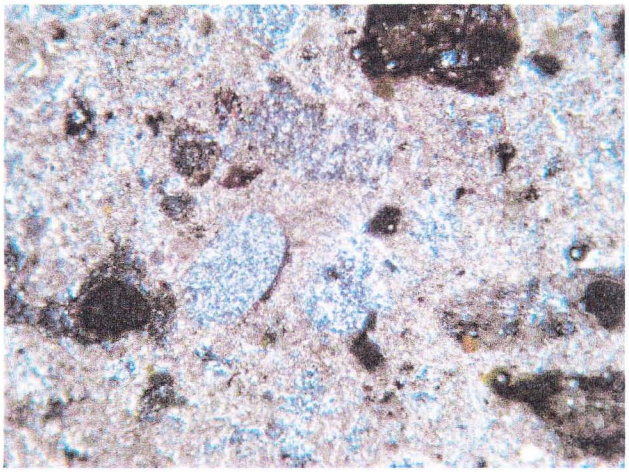
DDH08-07@115_002 FOV (mm): 1.7 Crossed polars

The groundmass has trachitic texture defined by fine plagioclase laths, and abundant palagonite.



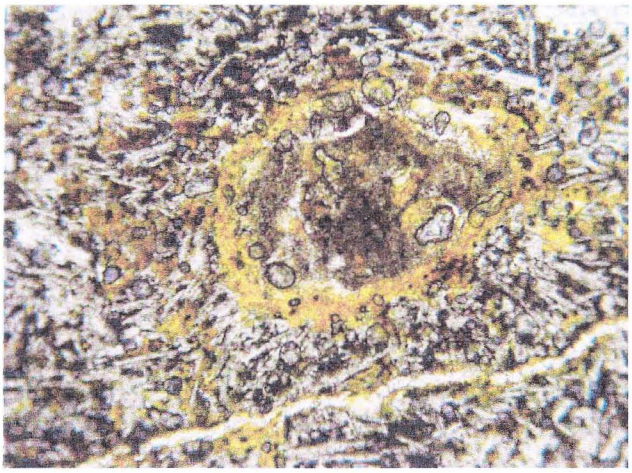
DDH08-07@115_003 FOV (mm): 1.7 Plane polarized light

Porphyroclastic lithic fragment with poorly developed spherulitic texture.



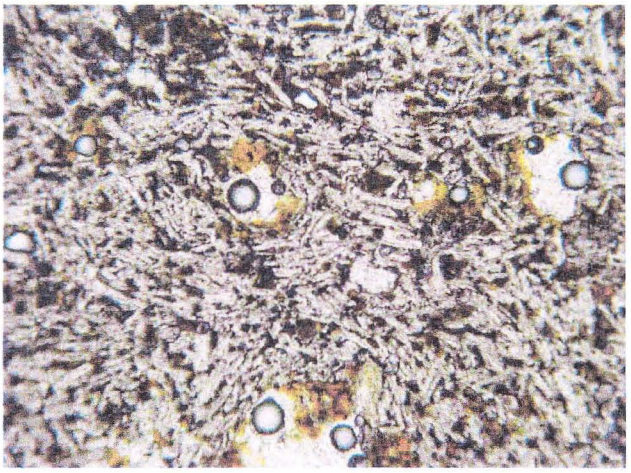
DDH08-07@115_004 FOV (mm): 1.7 Crossed polars

Lithic fragments of various compositions.



DDH08-07@115_005 FOV (mm): 1.7 Plane polarized light

Yellow-orange palagonite rims a lithic fragment.



DDH08-07@115_006 FOV (mm): 1.7 Plane polarized light

Yellow-orange palagonite surrounding phenoclasts.

DDH08-07@90.2 *Lithology* mafic ash and lapilli tuff *Assemblage* *AI:* 5

Hand Specimen Dark grey to black, fine-grained, dense and strongly magnetic rock with abundant orange-beige fracture fill.

Mode Mineralogy

%		Occurence
7	*Quartz*	hydrothermal1
35	*Plagioclase*	volcaniclastic
	Kspar	
	White Mica	
5	*Clay*	hydrothermal1
	Carbonate	
	Biotite	
	Epidote	
	Chlorite	
2	*Opaques*	hydrothermal1
20	*Fe-oxyhydrox*	volcaniclastic+hydr
	Jarosite	
5	*lithic fragment*	volcaniclastic
25	*glass*	volcaniclastic
0		
0		

Texture 1 trachitic *Structure*

Texture 2 porphyritic *Strength*

Grain Size medium grained (>0.25<2mm) *Groundmass* very fine grained

Ksp Stain not stained

Modal Mineralogy Comments

Very fine-grained trachitic texture groundmass composed of fine-grained feldspars, glass and secondary Fe-oxyhydroxides and clay. Sparse to rare subhedral plagioclase phenoclasts form <3% of the rock. Sparse irregular siliciclastic (mud) lithic clasts form <5% of the rock.

Veins

	Mineral 1	*Mineral 2*	*Mineral 3*	*Envelope*
Vein 1	Quartz			
Vein 2				
Vein 3				

quartz-clay veinlet network.

Opaque Mineralogy

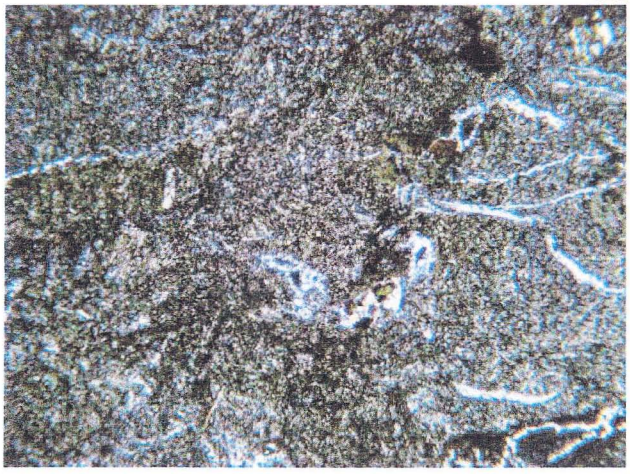
%	*Opaque*	*How*
	Hema	
0	*Mag*	
0	*Py*	
	Po	
0	*Cpy*	
	Moly	
	Asp	
	Sph	
	Gn	

Secondary Mineralogy

Mineral	*Intensity*	*How*	*How 2*	*AI*
Wt Mic				
Carb.				
Clay	weak	pervasive	vein hosted	2
Epidote				
Chlorite				
Biotite				
Kspar				
Albite				
Quartz	moderate	network		3
Jarosite				

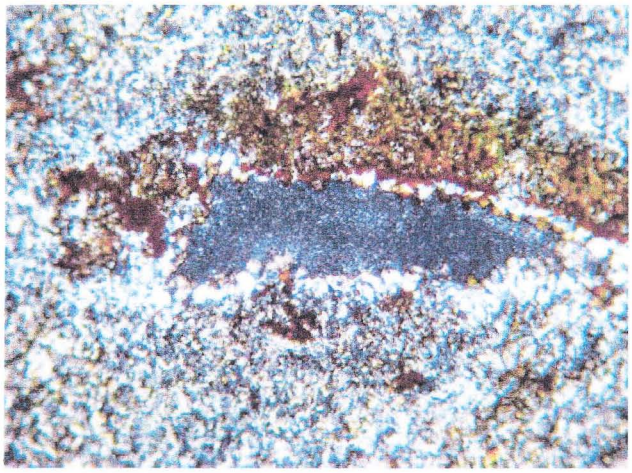
Alteration Comments

Moderately developed network of discontinuous quartz+/-clay veinlets.

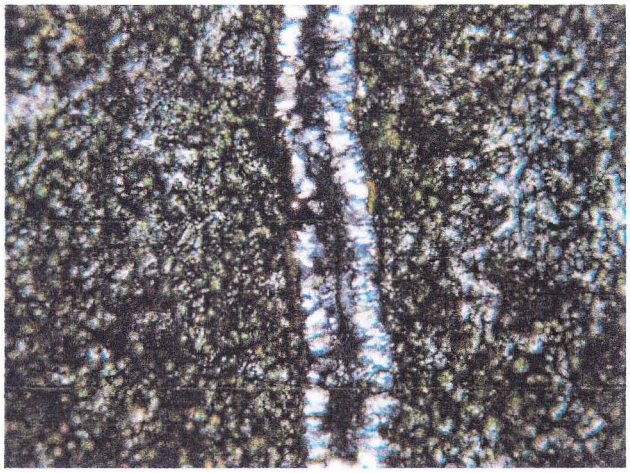


DDH08-07@90.2_001 FOV (mm): 6 Plane polarized light
Trachitic texture in fine-grained volcanic rock cut by a network of veinlets.

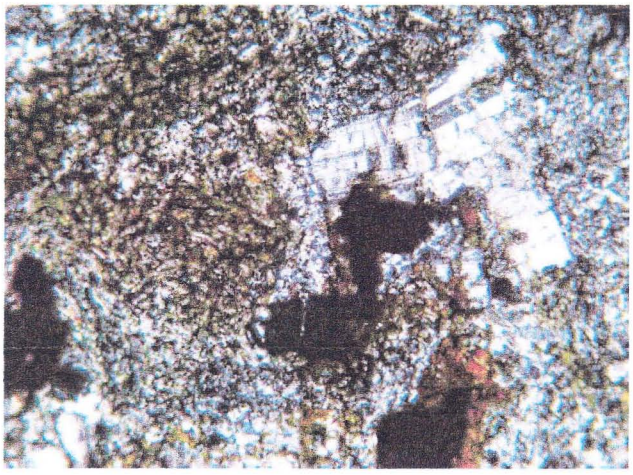
DDH08-07@90.2_002 FOV (mm): 1.7 Crossed polars
Remnant plagioclase phenoclast.



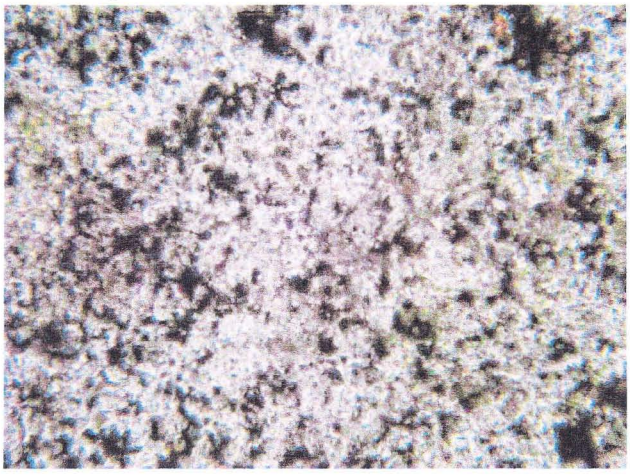
DDH08-07@90.2_003 FOV (mm): 1.7 Crossed polars
Small irregular lithic clast.



DDH08-07@90.2_004 FOV (mm): 1.7 Crossed polars
Quartz-clay veinlets



DDH08-07@90.2_005 FOV (mm): 1.7 Crossed polars
Sulphide-Fe-oxyhydroxides nucleated around a feldspar phenoclast.



DDH08-07@90.2_006 FOV (mm): 0.4 Plane polarized light
Abundant fine-grained Fe-oxyhydroxides in groundmass.

DDH-Breccia *Lithology* Basalt *Assemblage* carbonate *AI:* 11

Andesitic to basaltic composition. Cobaltinitrate staining is necessary for an accurate estimation of feldspar contents.

Hand Specimen Aphanitic red-brown basalt/andesite cut by a network of green, non-fizzing Cu-bearing minerals and white calcite veinlets.

Mode Mineralogy

%		Occurence
	Quartz	
50	Plagioclase	volcanic
	Kspar	
	White Mica	
10	Clay	hydrothermal1
7	Carbonate	hydrothermal1
	Biotite	
	Epidote	
7	Chlorite	devitrification
	Opaques	
10	Fe-oxyhydrox	devitrification
	Jarosite	
10	glass	volcaniclastic
5	atacamite	hydrothermal1
0		
0		

Texture 1 trachitic *Structure*

Texture 2 flow banded *Strength*

Grain Size medium grained (>0.25<2mm) *Groundmass* medium grained (

Ksp Stain not stained

Modal Mineralogy Comments

The aphanitic texture has trachitic and weak flow textures, and is composed by fine- to medium-grained plagioclase laths and lesser glass, chlorite, Fe-oxyhydroxides. Rare plagioclase phenocrysts <0.3 mm are strongly replaced by carbonate.

Veins

	Mineral 1	Mineral 2	Mineral 3	Envelope
Vein 1	Carbonate			
Vein 2				
Vein 3				

carbonate-atacamite+/-clay veinlet network

Opaque Mineralogy

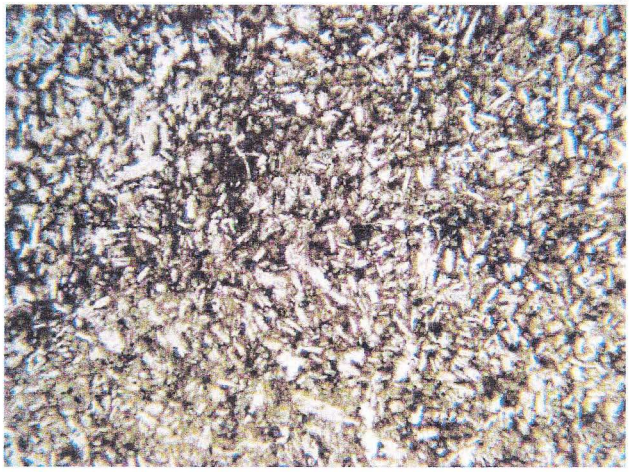
%	Opaque	How
	Hema	
0	Mag	
0	Py	
	Po	
0	Cpy	
	Moly	
	Asp	
	Sph	
	Gn	

Secondary Mineralogy

Mineral	Intensity	How	How 2	AI
Wt Mic				
Carb.	moderate	pseudomorph	vein hosted	4
Clay	moderate	vein hosted		3
Epidote				
Chlorite				
Biotite				
Kspar				
Albite				
Quartz				
Jarosite				
atacamite		network	vein hosted	4

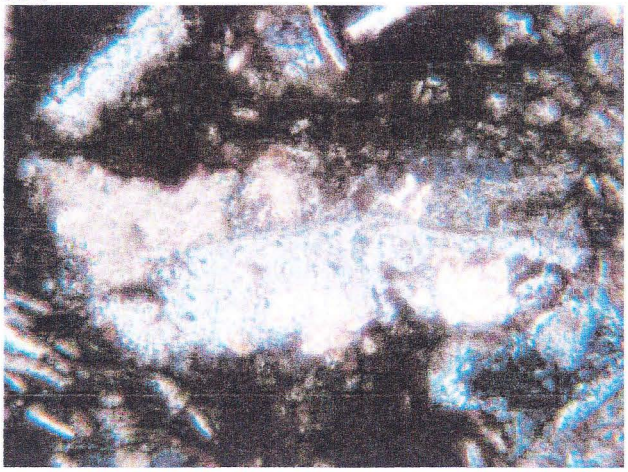
Alteration Comments

Moderate to locally strong pseudomorphic carbonate and lesser clay partly replacing plagioclase laths in the groundmass and strongly replacing small rare plagioclase phenocrysts. Strong atacamite-calcite+/-clay veinlet network.



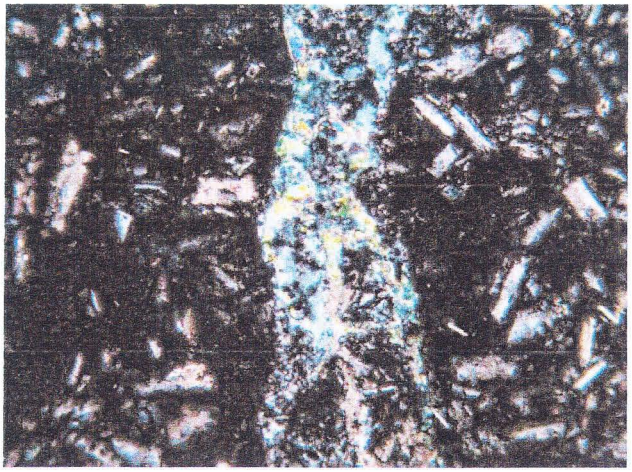
DDH-Breccia_001 FOV (mm): 6 Plane polarized light

Trachitic texture defined by plagioclase laths, glass-Fe-oxyhydroxides+/-chlorite.



DDH-Breccia_002 FOV (mm): 0.4 Crossed polars

Carbonate (calcite) partly replaces plagioclase in the groundass.

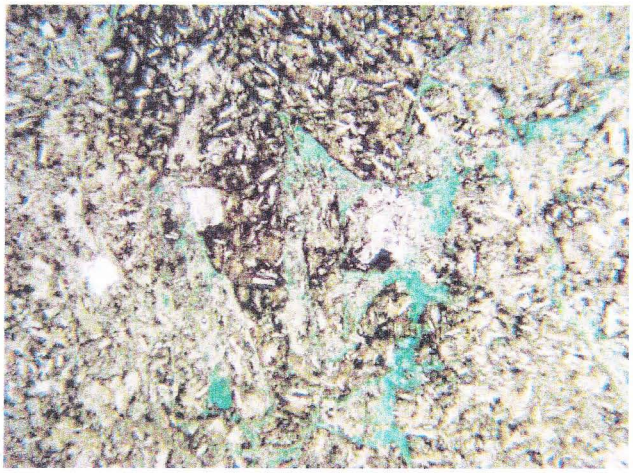


DDH-Breccia_003 FOV (mm): 1.7 Crossed polars

Atacamite-carbonate-clay veinlet and carbonate pseudomorphs after fine-grained plagioclase laths.

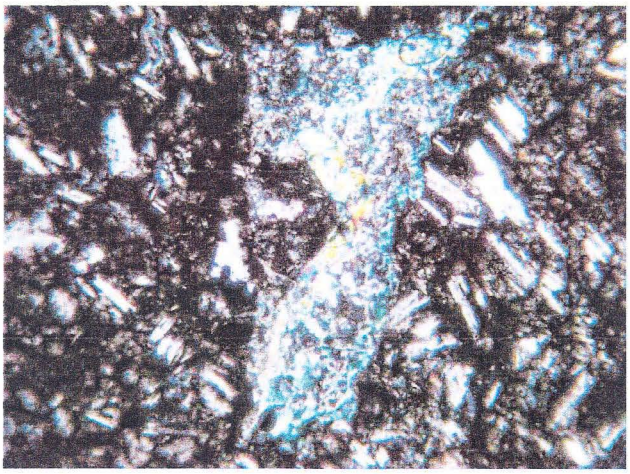
DDH-Breccia_004 FOV (mm): 1.7 Crossed polars

Rare coarser grained euhedral plagioclase phenoclasts are strongly replaced by carbonate.



DDH-Breccia_005 FOV (mm): 6 Plane polarized light

Locally green atacamite veinlet network forms a weak brecciating texture.



DDH-Breccia_006 FOV (mm): 1.7 Crossed polars

Weak discontinuous atacamite-clay veinlet.

UNK1-magn *Lithology* Andesite *Assemblage* supergene *AI:* 5

Andesitic to basaltic composition. Cobaltinitrate staining is necessary for an accurate estimation of feldspar contents.

Hand Specimen Light greenish-grey, fine-grained porphyroclastic and spherulitic, weakly magnetic rock with black tennorite(?) on surface.

Mode Mineralogy

%		Occurence
	Quartz	
7	*Plagioclase*	volcanic
	Kspar	
	White Mica	
5	*Clay*	devitrification
	Carbonate	
	Biotite	
	Epidote	
	Chlorite	
	Opaques	
7	*Fe-oxyhydrox*	volcanic
	Jarosite	
15	*Palagonite*	devitrification
58	*glass*	
8	*atacamite*	hydrothermal1
0		

Texture 1 perlitic *Structure*

Texture 2 *Strength*

Grain Size medium grained (>0.25<2mm) *Groundmass* very fine grained

Ksp Stain not stained

Modal Mineralogy Comments

Aphanitic glass>palagonite>clay (smectite) and minor fine-grained plagioclase form the perlitic groundmass. Sparse subhedral to euhedral plagioclase phenocrysts <2 mm.

Veins

	Mineral 1	*Mineral 2*	*Mineral 3*	*Envelope*
Vein 1				
Vein 2				
Vein 3				

Opaque Mineralogy

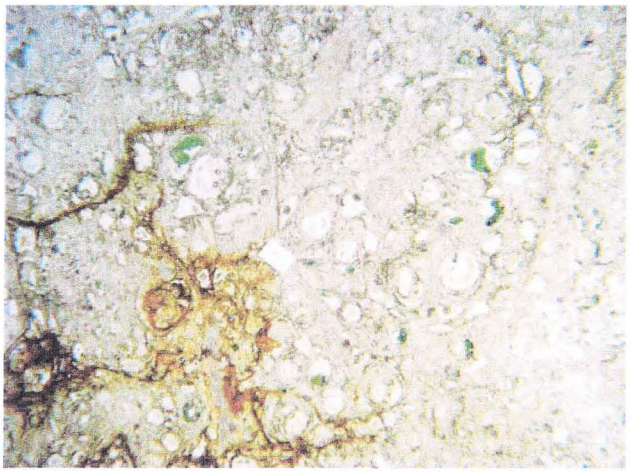
%	Opaque	How
	Hema	
0	*Mag*	
0	*Py*	
	Po	
0	*Cpy*	
	Moly	
	Asp	
	Sph	
	Gn	

Secondary Mineralogy

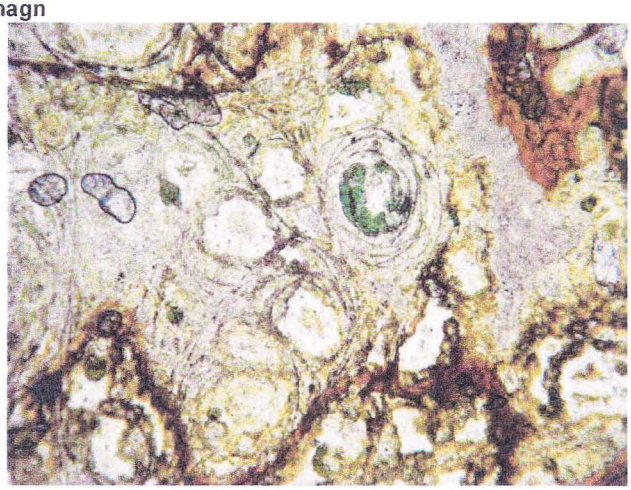
Mineral	*Intensity*	*How*	*How 2*	*AI*
Wt Mic				
Carb.				
Clay				
Epidote				
Chlorite				
Biotite				
Kspar				
Albite				
Quartz				
Jarosite				
atacamite		pseudomorph		5

Alteration Comments

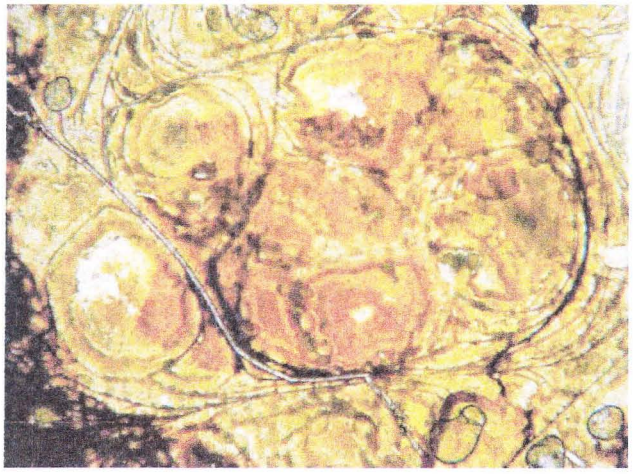
Strong atacamite replacing the rims or cores of perlite.



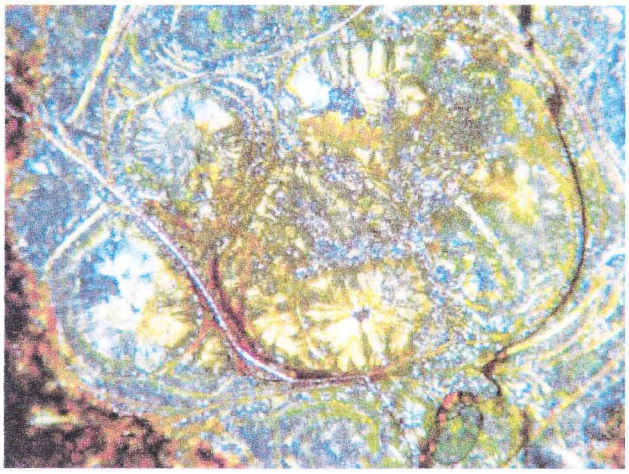
UNK1-magn_001 FOV (mm): 6 Plane polarized light
Well developed perlitic texture.



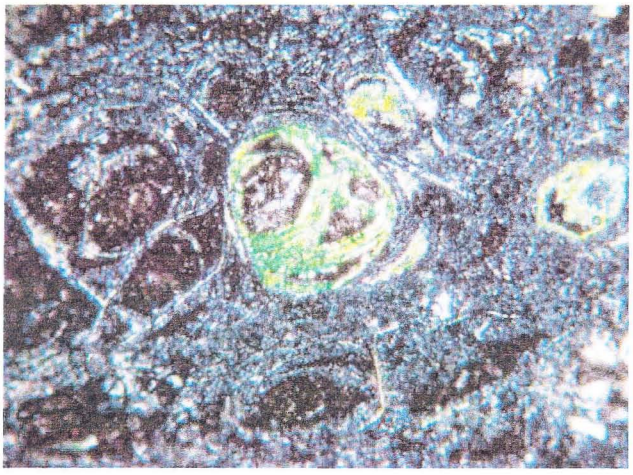
UNK1-magn_002 FOV (mm): 1.7 Crossed polars
Perlite is locally moderately to strongly replaced by green atacamite.



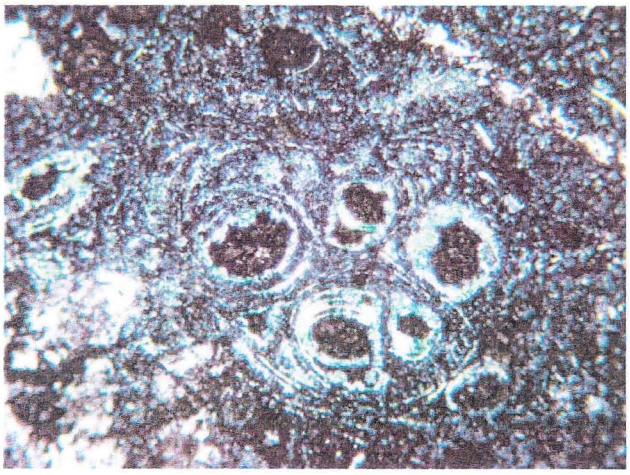
UNK1-magn_003 FOV (mm): 1.7 Crossed polars
Abundant orange-yellow palagonite replacing glassy perlite.



UNK1-magn_004 FOV (mm): 1.7 Crossed polars
Same, under crossed-polars. The smectite component of palagonite has radial crystallization.



UNK1-magn_005 FOV (mm): 1.7 Crossed polars
Glassy (non-palagonite replaced) portion of the sample, with green atacamite strongly replacing a perlite.



UNK1-magn_006 FOV (mm): 1.7 Crossed polars
Green atacamite replacing perlite rims.

UNK-II-sph *Lithology* volcanic glass *Assemblage* *Al:*

moderately devitrified (smectitic) glass

Hand Specimen White to brown spherulitic volcanic rock, non-magnetic.

Mode Mineralogy

%		Occurence
3	*Quartz*	volcanic
7	*Plagioclase*	volcanic
	Kspar	
	White Mica	
45	*Clay*	devitrification
	Carbonate	
	Biotite	
	Epidote	
	Chlorite	
	Opaques	
	Fe-oxyhydrox	
	Jarosite	
45	*glass*	volcanic
0		
0		
0		

Texture 1 spherulitic *Structure*

Texture 2 *Strength*

Grain Size coarse grained (>2<16 mm) *Groundmass*

Ksp Stain not stained

Modal Mineralogy Comments

Anhedral plagioclase and leser quartz grains < 2.5 mm form the core of spherulites, and also a very fine network of crack-fill. Elongate clay (smectitic) fibres define the spherulitic structure.

Veins

	Mineral 1	*Mineral 2*	*Mineral 3*	*Envelope*
Vein 1				
Vein 2				
Vein 3				

Opaque Mineralogy

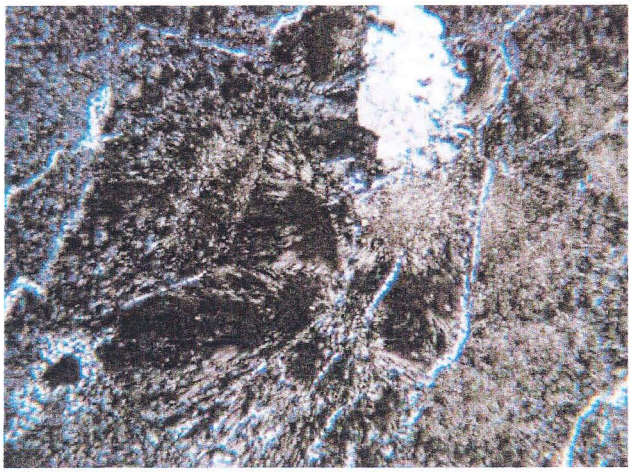
%	*Opaque*	*How*
	Hema	
0	*Mag*	
0	*Py*	
	Po	
0	*Cpy*	
	Moly	
	Asp	
	Sph	
	Gn	

Secondary Mineralogy

Mineral	*Intensity*	*How*	*How 2*	*Al*
Wt Mic				
Carb.				
Clay				
Epidote				
Chlorite				
Biotite				
Kspar				
Albite				
Quartz				
Jarosite				

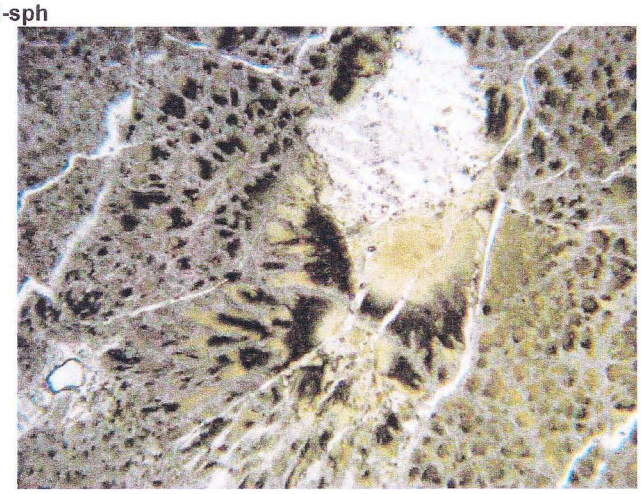
Alteration Comments

unaltered rock



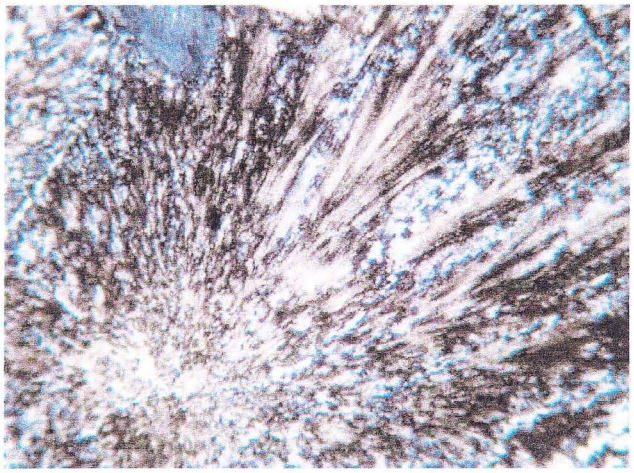
UNK-II-sph_001 FOV (mm): 6 Crossed polars

Spherulitic structure defined by radiating clay minerals cored by plagioclase grains



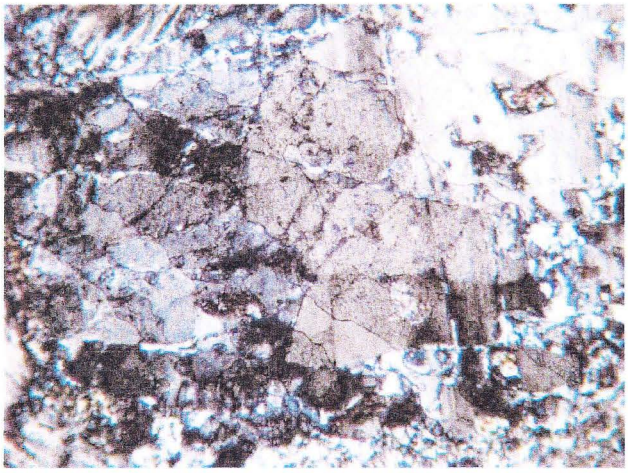
UNK-II-sph_002 FOV (mm): 6 Plane polarized light

Same, under plane parallel light.



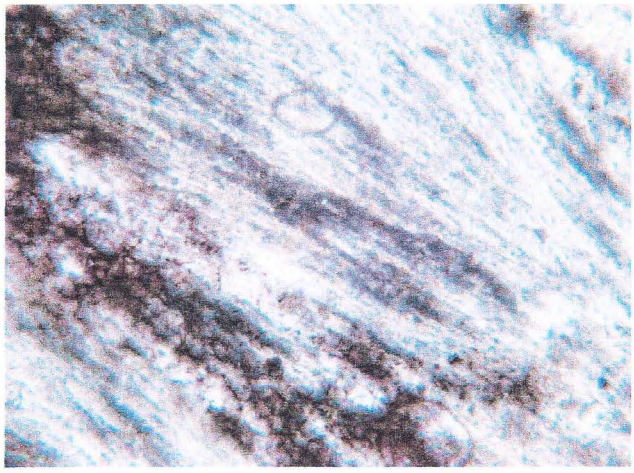
UNK-II-sph_003 FOV (mm): 1.7 Crossed polars

Radiating clay fibres.



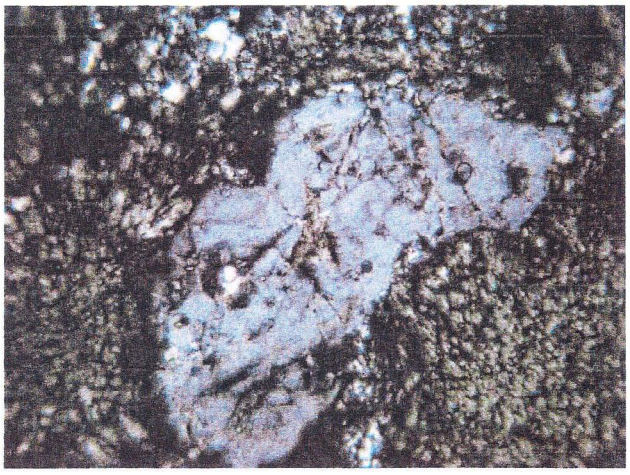
UNK-II-sph_004 FOV (mm): 1.7 Crossed polars

Anhedral plagioclase grains forming the core of a spherulitic structure.



UNK-II-sph_005 FOV (mm): 0.4 Crossed polars

Radiating clay fibres.



UNK-II-sph_006 FOV (mm): 1.7 Crossed polars

Anhedral quartz grain at the core of a spherulitic structure.

Appendix 5
Drill Logs 2009

HOLE # DDH-08-06

Project: Kirkland Creek Date Started: Azimuth: Easting:

Date Finished: Dip: Page 1 of 2

Logged by: Contractor: Depth: Northing:

Interval From	Interval To	Description	Graphic	Alteration	Assays From	Assays To	Assays Sample						
8.5	14	Dacite:f.g.maroon, porhyritic; 80%						heavy	vesicular				
		maroon, 20% brn; hematiic is subaerial						brx					
		flow brx's; flows 2-3 m thick						hem					
14.0	52.25	Dacit Porphry ; maroon + brn f.g. ;						limonite					
		secondary brx											
					14.0	17.0	780101						
after	23.5	cemented by hematith limonite			17.0	20.0	780102						
		geothite; locally minor q+2+calcite;			20.0	23.0	786103						
		weakle magnetic (f.g.magnetith) locally			23.0	26.0	780104						
		tr Py			26.0	29.0	780105						
					29.0	34.0	780106						
52.25	63.65	Lithic Tuff: green lithic tuff; frags up to			34.0	39.0	780107						
		5cm;			39.0	42.0	780108						
		sharp upper contact Tca 40°			42.0	45.0	780109						
65.65	67.45	CSE Ash Tuff			45.0	47.0	780110						
67.45	73.10	Tuff											
73.10	81.25	Lithic Tuff											
81.25	98.62	Andesit Porphry (dyke)											
98.62	99.70	Lithic Tuff											
99.7	148.0	CSE Ash Tuff											
					100.0	103.0	780111						
					104.0	106.0	780112						
					106.0	109.0	780113						
					109.0	112.0	780114						
					112.0	115.0	780115						
					115.0	118.0	780116						
					118.0	121.0	780117						
					121.0	124.0	780118						
					124.0	127.0	780119						
					127.0	130.0	780120						
					130.0	133.0	780121						
					133.0	136.0	780122						

HOLE # DDH-08-06

Project: Kirkland Creek Date Started: Azimuth: Easting:

Date Finished: Dip: Page 2 of 2

Logged by: Contractor: Depth: Northing:

Interval From	Interval To	Description	Graphic	Alteration	From	To	Sample		Assays					
					136	139	780123							
					139	142	780124							
					142	145	780125							
					145	148	780126							

HOLE # DDH-08-07

Project: Kirkland Creek | Date Started: | Azimuth: | Easting:

Date Finished: | Dip: | Page 1 of 1

Logged by: B. Krause | Contractor: | Depth: | Northing:

Interval												Assays					
From	To	Description	Graphic			Alteration						From	To	Sample						
10.0	93.0	Lapill: tuff; fine ash component int mafil										78	81	780128						
		lapilli 80 + %; strongly magnetic;										81	84	780129						
		porphyritic q + z/ calcite veinletss;										84	87	780130						
		fuldopars clay alt.										87	89	780131						
												89	90	780132						
												90	91	780133						
												91	92	780134						
93	101	lapill: tuff; in mafic slightly prophyritic										92	94	780135						
		q + z calcite veinlts fuldpars clay alt										94	96	780136						
												96	98.5	780137						
												98.5	101	780138						