Daren Resources Limited
701-675 West Hastings Street, Vancouver, B.C. V6B 1N2

PRELIMINARY INVESTIGATION OF THE COPPER MOUNTAIN PERTHOSITE AS A SOURCE OF CERAMIC GRADE FELDSPAR

PRELIMINARY INVESTIGATION OF THE COPPER MOUNTAIN PERTHOSITE AS A SOURCE OF ECONOMIC GRADE FELDSPAR

CLAIMS:	FELD, F1FR & FR2FR
TAG NOS:	605467M, 792468, 230388 ~~32 6867, 32 6869~~ and ~~32 6870~~
MINING DIVISION:	Similkameen
NTS LOCATION:	92H/038
LAT/LONG:	49° 19' /120° 35'
OWNER:	CRYSTAL CAPITAL CORP.
OPERATOR:	DAREN RESOURCES LTD.
AUTHOR:	M. Gent
DATE:	June 13, 1996

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1. INTRODUCTION

GENERAL LOCATION

The property is situated between Highway 3 and the Similkameen River and approximately 30 kilometers south of the town of Princeton.

[see location map]

PROPERTY DEFINITION

The claims include Deep Gulch Creek and abut onto the abandoned section of Highway 3 with the most westerly corner of the Feld claims being within 10 metres of the east side of the present Highway 3. There were staked on June 23rd, 1994 by J.D. Graham for Dr. J.H. Montgomery.

LOCAL GEOLOGY

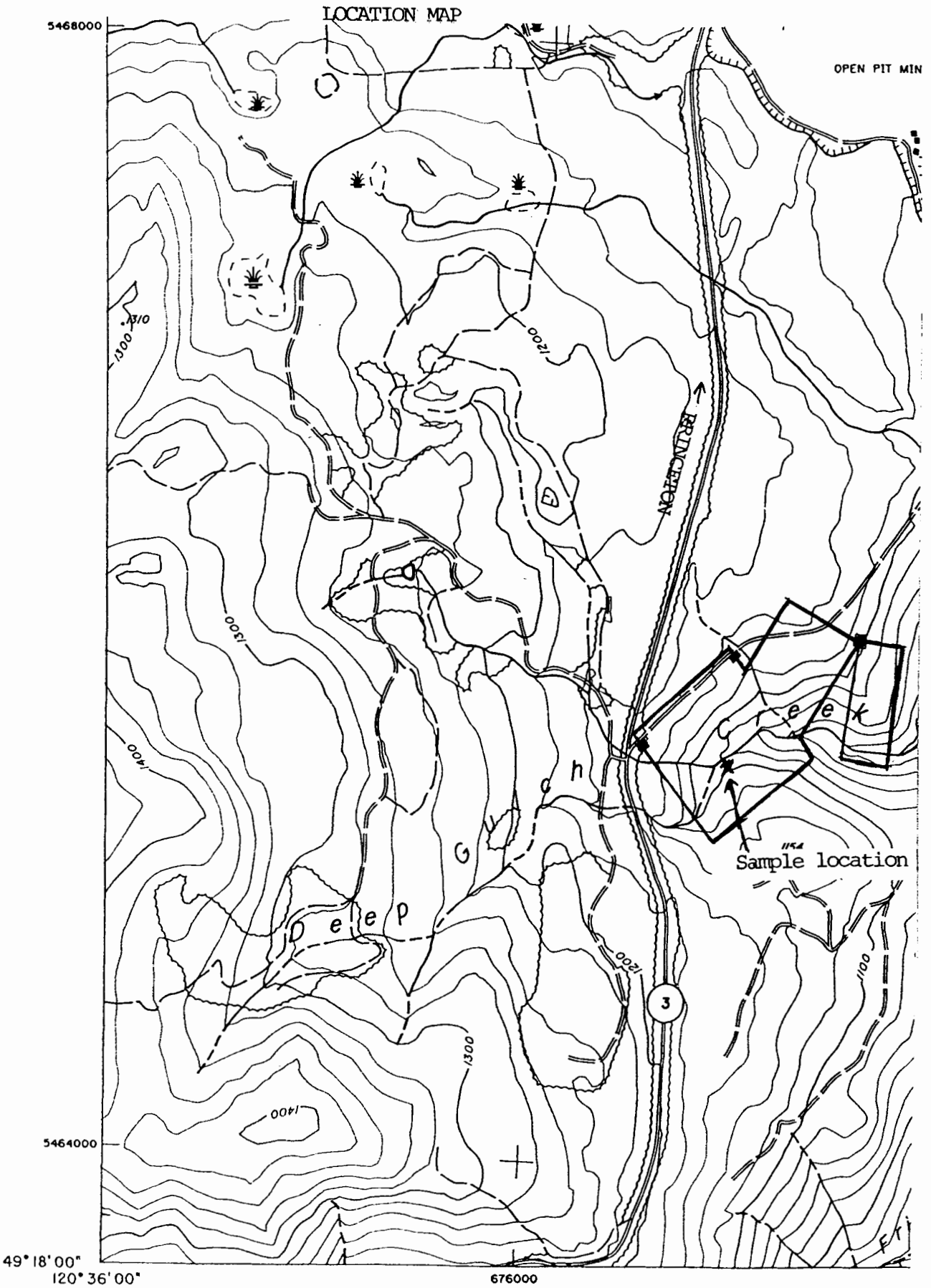
The properties were staked based on the experience in the area of Dr. Montgomery when conducting his Ph.D. thesis studies. The perthosite represents the core of the differentiated, Copper Mountain intrusive of Jurassic Age. It is restricted to the northwest by a fault with a NNE orientated with volcanics of the Nicola Group being in contact across the fault. Otherwise the Perthosite zones outwards into Monzonite.

Modal analysis presented in Dr. Montgomery's thesis suggests that -- the inner zone of the Copper Mountain Stock is relatively devoid of plagioclase and contains less that 1% quartz - Leucoxene, magnetite and sericite also appear to be the most significant and delitereous components of the perthosite as a source of ceramic grade feldspar.

2. PROJECT ACTIVITIES

One days field work was conducted on the property to:

1. Acquire sample for chemical and mineralogical analysis of different textural types of the rock types occurring in the perthosite zone.



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METRES

2. Acquire familiarity with the local terrain to plan a possible trenching program for fresh sample material to be use in metallurgical benification tests.

PETROGRAPHIC

Six representative samples from surface exposures were collected and sent for mineralogical study at Vancouver Petrographic. Five samples were from different facies of the perthosite stock and one from the syenite zone outside of the stock. The syenitic sample was collected in case similar material was found to occur as inclusions or intrusions within the perthosite zone.

The results of polished thin section, petrographic analysis (Appendix 1) shows the perthosite to consist primarily of K-feldspar and plagioclase with less than 5% contaminants (Table 1)

TABLE 1 - Results of Petrographic Investigation of the Copper Mountain Stock Perthosite

MINERAL	RANGE OF ABUNDANCE	AVERAGE
K-Feldspar	75 to 90%	82%
Plagioclase (albite?)	7 to 20%	13.4%
Muscovite, sericite	1 to 5%	3.3%
Clay	<1 to 2%	<15
Rutile/leuoxene/sphene	<1 to 1%	<1%
Zircon	trace	trace
Limonite	trace	trace

CHEMICAL

A single XRF analysis of the perthosite found it to contain 18.22% Al_2O_3 0.20% CaO, <0.01% Cr_2O_3, 0.21% Fe_2O_3, (may be partially contaminated during milling) 11.86% K_2O, 0.15% MgO, <0.01% MnO, 4.22% Na_2O, 0.02% P_2O_5, 64.71% SiO_2, 0.06% TiO_2, 0.85% LOI.

3. INTERPRETATION

3.1 With the exception of sample IE no quartz was observed and even in the case of IE, the amount was too small and fine grained to be of significance. As such, and unlike most other feldspar operations, flotation methods to separate out the quartz would probably not be required and processing could be conducted without any water requirements.

3.2 The petrographic studies indicate that the presence of refractory minerals such as rutile and sphere may require gravimetric processing to meet glass grade specifications.

3.3 The chemical analysis suggest that the perthosite may meet low grade ceramic specifications without benification but that the iron content will have to be reduced to meet the high grade ceramic specifications (<0.10% Fe_2O_3). The high observed TiO_2 mineral relative to the low TiO_2 chemical content suggests that pseubrookite or Fe rich rutile is present and might be removed by high intensity magnetic separation.

3.4 Two separate routes for processing can be considered.

1) dry grinding with magnetic separation to remove contaminants from the mining and milling operations followed by two stage air flotation to remove the muscovite/sericite and heavy mineral (rutile/sphere/leuxocene) contaminants.

2) wet milling with magnetic separation to remove contaminants from the mining and milling operations followed by flotation to remove the muscovite and sericite followed by a flotation or gravimetric separation to remove the heavy minerals.

4. RECOMMENDATIONS

Four or more sites be selected for trenching or drilling to determine the depth of surface alteration and to acquire fresh samples to test if Ca CO_3 is present or not and to conduct metallurgical investigations to identify an optimum processing method.

REFERENCES

Montgomery, J.H. (1967) - Petrology. Structure and Origin of the Copper Mountain Intrusions near Princeton, British Columbia, 172p.

5. STATEMENT OF COSTS

4x4 vehicle rental (1 day)	226.59
Lab analyses	819.35
Professional Days 2.5 @ $450	1125.00
Office overhead (typing, maps, photocopies)	325.64
TOTAL	**$2496.58**

6. PROFESSIONAL QUALIFICATIONS

MALCOLM R. GENT

B.Sc. Condordia University

M.Sc. McGill University

Eighteen (18) plus years experience in the mineral exploration and mining sector, or which the past twelve have included industrial minerals.

Professional Registration

Assoc. of Professional Engineers of Sask. (in progress)

Colegis Oficial de Geologas de Espana (in progress)

Record of Employment

Sask Dept. of Energy and Mines	1989-1996	Sr. Industrial Minerals Geologist
Barringer Research Ltd.	1988-1989	Sr. Geophysicst
Self employed	1984-present	Industrial Mineral exploration and development
Petroleum Research Centre of Libya	1983-1987	Sr. Researcher
Hi-Tec Res. Management	1983	Chief Geologist
Pegasus Earth	1981-1983	Sr. Geologist
COGEMA	1978-1981	Exploration Geologic
CIDA	1977-1978	Researcher

APPENDIX 1

Vancouver Petrographics Ltd.

8080 GLOVER ROAD, LANGLEY, B.C. V3A 4P9
PHONE (604) 888-1323 • FAX (604) 888-3642

PETROGRAPHIC REPORT ON 6 THIN SECTIONS

Report for: Malcolm Gent
Daren Resources Limited
701-675 West Hastings Street
Vancouver, B.C. V6B 1N2

Invoice 960306

June 9, 1996.

SF 1A: PERTHITIC K-FELDSPAR WITH MINOR ALBITE, MUSCOVITE AND RUTILE

Pale pinkish-buff, massive K-feldspar with minor patches of sericite and traces of dark minerals; sample is not magnetic and shows no reaction to cold dilute HCl. Modal mineralogy in polished thin section is approximately:

K-feldspar	85%
Plagioclase (?albite)	10%
Muscovite, sericite	3%
Clay (after feldspar)	1-2%
Rutile	<1%
Zircon (?)	tr

This sample consists of interlocked, subhedral laths of K-feldspar to a maximum of 2 mm long, with minor patches of muscovite (sericite) and plagioclase feldspar and trace opaques.

K-feldspar crystals are mainly perthitic and commonly appear to have ?replaced plagioclase, twinned remnants of which are still visible. The K-feldspar may contain as much as 5-10% albite in perthitic inclusions of 10-50 microns diameter; the K-feldspar is generally strongly clouded by sub-microscopic particles of ?clay.

Plagioclase also forms subhedral crystals rarely over 0.1 mm in size (in clots up to 4 mm diameter, mixed with muscovite); relief barely above that of K-feldspar and extinction on 010 twinning of about 15 degrees indicate a composition of albite, probably near An_0.

Muscovite forms euhedral flakes up to 0.35 mm diameter, mixed with finer (25 micron) white mica or sericite. Rare subhedral, cracked crystals of ?zircon up to 150 microns long occur in the muscovite. Opaques appear to be entirely rutile, as subhedral crystals or aggregates up to 0.2 mm across. Two colours of these crystals in transmitted light (red and clear) suggest that both rutile and a polymorph such as brookite or anatase, or possibly pseudobrookite (Fe_2TiO_5), may be present.

SF 1B: PERTHITIC K-FELDSPAR WITH MAJOR ALBITE, MINOR MUSCOVITE AND TRACE RUTILE

Buff-white, massive K-spar rich rock with grey-green patches of muscovite, and areas of feldspar that do not stain for potassium in the etched slab. There are minor opaques and some vuggy areas; the rock is not magnetic and shows no reaction to cold dilute HCl. Modal mineralogy in polished thin section is approximately:

K-feldspar	75%
Plagioclase (albite)	20%
Muscovite	5%
Rutile, ?leucoxene (trace sphene)	<1%
Clay (?) after K-feldspar	<1%

K-feldspar forms sub- to euhedral perthitic crystals up to 3 mm long that appear to contain as much as 20% albitic feldspar as fine inclusions of 50-100 micron size, mainly interconnected along cleavages. The K-feldspar is mildly clouded by ultrafine ?clay particles.

Plagioclase also forms large, sub- to euhedral crystals or glomeratic aggregates to 3 mm diameter that appear to be replaced around their margins by the K-feldspar. Plagioclase, likely albitic in composition near An_0 (patchwork and spindle-shaped twins), is also moderately sericitized (subhedral flakes to 50 microns). These sericitized plagioclase areas grade to the patches of muscovite (subhedral, to 0.35 mm) and finer, clear albite crystals (subhedral, to 0.1 mm), suggesting this K-feldspar rich rock has resulted from the potassic replacement of a plagioclase-rich rock.

Opaques, commonly concentrated in and around the patches of muscovite, and possibly representing the sites of former Fe-Ti oxide and mafic minerals respectively, appear to be mainly rutile, partly ?altered to leucoxene. The mineral identified as rutile is clear to yellow-brown, forming euhedral crystals to 0.1 mm (aggregates to 0.35 mm); in places it is mixed with a deep red-brown to opaque, fine-grained to amorphous mineral that could be leucoxene. Traces of ?sphene form euhedral crystals to 40 microns concentrated around the margins of some rutile-?leucoxene aggregates.

SF 1C: MASSIVE K-FELDSPAR WITH SIGNIFICANT ALBITIC PLAGIOCLASE AND MINOR MUSCOVITE/SERICITE (PARTLY ALONG FRACTURES); TRACE SPHENE/RUTILE

White, massive K-feldspar rock with minor patches of sericite or muscovite, areas of sericitized plagioclase, and traces of pale brownish-buff to brown opaque; rare sericitic fractures. The rock is not magnetic and shows no reaction to cold dilute HCl; modal mineralogy in polished thin section is approximately:

K-feldspar (pethitic)	80%
Plagioclase (albitic)	15%
Muscovite, sericite	3-5%
Clay (in K-feldspar)	<1%
Rutile	<1%
Sphene	<1%

This sample consists of mainly subhedral, ragged, interlocking laths of perthitic K-feldspar generally less than 1 mm in length. The K-feldspar is mainly clouded by very fine (submicroscopic) inclusions of ?clay, and contains about 20% albite inclusions of 10-50 micron size, partly interconnected.

Plagioclase forms minor crystals to 0.3 mm interstitial to K-feldspar, as well as subhedral crystals to 1 mm long intermixed with muscovite and finer white mica (sericite) in patches up to 3 mm in diameter. Spindle-shaped twinning and extinction Y^010 of up to 13 degrees indicate an albitic composition ($An_{<5}$). Plagioclase shows minor sericitization.

Muscovite forms subhedral flakes to 0.6 mm diameter, commonly mixed with finer sericite of 25-50 microns. Sericite also occurs along a network of microfractures (10-25 microns thick), in places cut by microfractures of similar thickness composed of ?quartz and yellow-brown, 10 micron diameter rutile.

?Sphene forms clear, euhedral to subhedral crystals up to 0.35 mm long; rutile forms deep red-brown to in places opaque euhedral crystals up to 0.25 mm in size.

SF 1D: MASSIVE PERTHITIC K-FELDSPAR, SIGNIFICANT ALBITIC PLAGIOCLASE, MINOR MUSCOVITE-SERICITE, AND TRACE RUTILE/?PSEUDOBROOKITE, LIMONITE

White to pale buff-orange (limonite stained) massive K-feldspar containing rounded to irregular patches of muscovite-albite and traces of brown ?sphene-rutile. The sample is not magnetic and does not react to cold dilute HCl; modal mineralogy in polished thin section is approximately:

K-feldspar (perthitic)	80%
Plagioclase (albitic)	15%
Sericite	3%
Rutile, ?pseudobrookite	1%
Clay (?), after feldspar	<1%
Limonite	<1%

K-feldspar forms large subhedral to ragged crystals with scalloped boundaries to about 2 mm long, moderately clouded by submicroscopic particles of ?clay and containing about 15% interconnected inclusions of ?albitic plagioclase. Large relict glomeratic crystals or aggregates of plagioclase up to 4 mm long are moderately sericitized; extinction Y^010 of around 12 degrees indicates albitic composition in the An_{5-10} range. Sericitic patches up to 3 mm across are composed of subhedral flakes of muscovite to 0.25 mm with finer sericite to 50 microns. Opaques, mainly rutile, are partly associated with the muscovite-sericite patches

Rutile occurs mainly as fine (10-30 micron) euhedral crystals in aggregates with euhedral to subhedral outlines up to 0.3 mm across that suggest rutile is pseudomorphing former larger Fe-Ti oxide minerals. Most rutile is colourless to yellow-brown, but some crystals are deep red-brown in colour, implying polymorphs such as anatase or brookite, or pseudobrookite. There are faint traces of pale brown, transported limonite along fractures and some grain boundaries, presumably due to incipient weathering of the rock.

SF 1E: MASSIVE PERTHITIC K-FELDSPAR, MINOR ALBITE, MUSCOVITE-SERICITE, AND TRACE RUTILE/?PSEUDOBROOKITE, SPHENE, LIMONITE

Creamy-white, massive K-feldspar rock with minor fine white plagioclase (unstained in etched slab); traces of brown opaques, and rare limonite along fractures. The rock is not magnetic, and shows no reaction to cold dilute HCl; modal mineralogy in polished thin section is approximately:

K-feldspar (perthitic)	90%
Plagioclase (albitic)	7%
Sericite, muscovite	1-2%
Rutile, ?pseudobrookite	1%
Clay	<1%
Limonite	tr

K-feldspar forms subhedral to irregular crystals generally less than 2.5 mm long, tightly intergrown with ragged or scalloped borders. Most of the K-feldspar is clouded by very fine (micron-sized) ?clay particles, and about 15-20% of the perthitic crystals actually appears to be albite (relief well above that of the K-spar; in places showing fine polysynthetic to spindle-shaped twinning).

However, apart from the perthitic albite, plagioclase seems to be less abundant in this sample than in the preceeding (1A-D); it does not contain the large, partly sericitized albite relics seen in the other samples. Sericite and coarser muscovite form subhedral flakes to about 25 microns and 0.3 mm respectively, the former scattered and the latter in clumps or patches up to 0.75 mm across, in places mixed with 0.1 mm subhedral albite crystals.

Rare narrow veinlets (to 0.1 mm thick) consist of muscovite and ?albite or quartz (relief above K-spar; crystals not large enough to identify with certainty, and not twinned).

Rare sphene forms euhedral, scattered crystals to 0.25 mm diameter; rutile occurs as clusters of euhedral 20 micron crystals and ?pseudobrookite (or Fe-rich rutile) forms euhedral crystals to 0.35 mm diameter, with deep red-brown colour. There are also traces of red-brown ?limonite as intergranular (transported) stains, or in places apparently distributed along microfractures.

SF 2A: ALBITE AND K-FELDSPAR RICH ROCK, POSSIBLY SYENITIC COMPOSITION, WITH MINOR SERICITE, QUARTZ, AND COMMON RUTILE/PSEUDOBROOKITE

Buff-cream to pale greenish, feldspar-rich rock with common specks of a brown opaque mineral and small vugs, plus minor stains of limonite. The rock is not magnetic and shows no reaction to cold dilute HCl; in the etched and stained slab, only about 25-30% ofthe surface is stained yellow for K-feldspar, and traces of grey ?quartz are apparent. Modal mineralogy in polished thin section is approximately as follows:

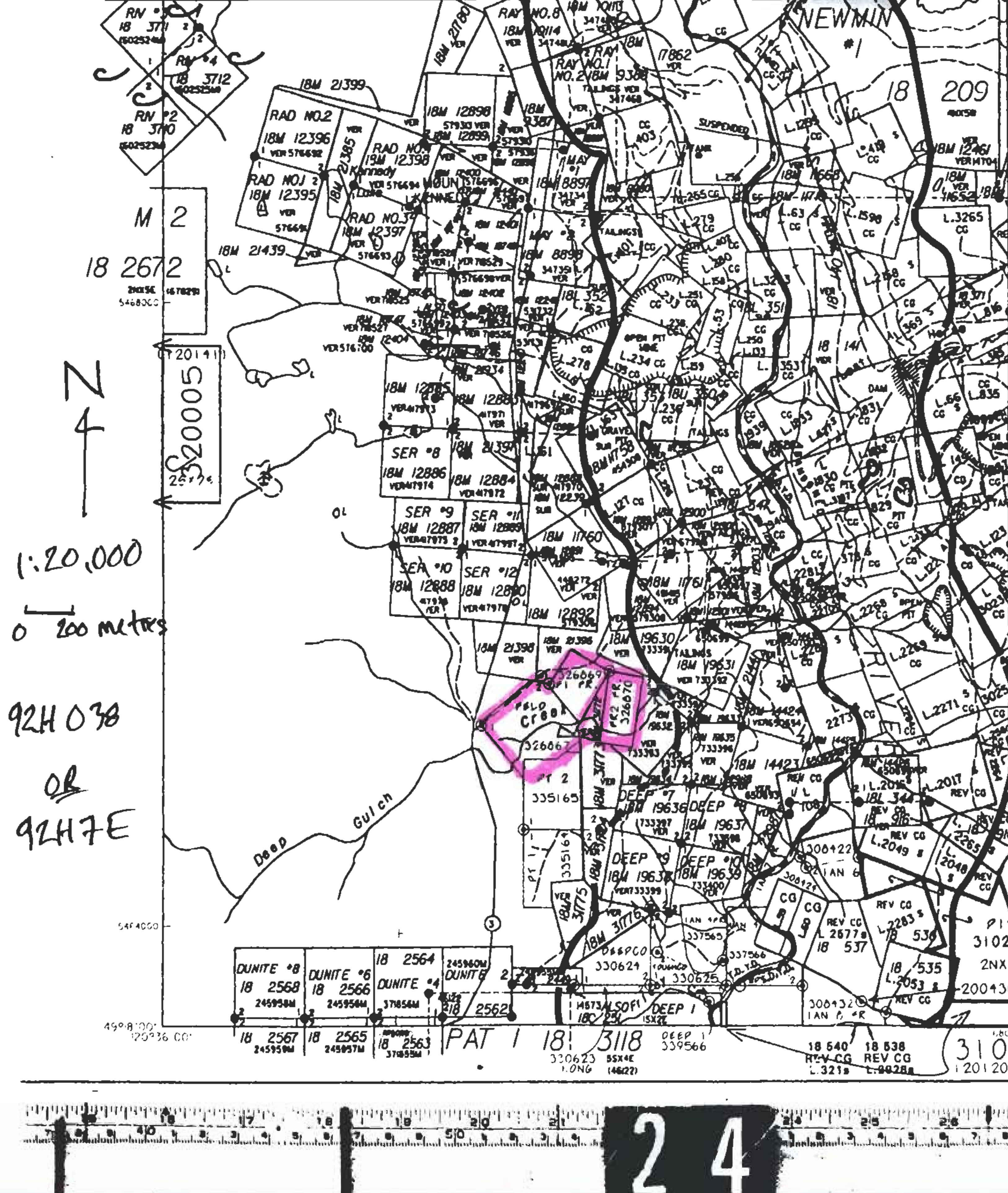
Plagioclase (albitic)	60%
K-feldspar (perthitic)	30%
Sericite, muscovite	5%
Quartz	1-2%
Rutile, ?pseudobrookite	1-2%
Clay (after feldspars)	1-2%
Limonite (goethitic)	tr

This rock is similar to 1A-D, but shows less replacement of albitic plagioclase by K-feldspar. Plagioclase forms subhedral crystals generally less than 3 mm long, with ragged borders due to margin replacement by K-feldspar. Twinning is common in the plagioclase, with extinction angle Y^010 of about 15 degrees, and relief less than quartz, suggesting albitic composition near An_0. Most of the crystals are moderately flecked by sericite (50 microns) or coarser muscovite (to 0.2 mm diameter). Former zoning in the plagioclase is indicated by cores (80-90% of the crystals) that are richer in fine sericite than rims (10-20% of the crystals). K-feldspar is commonly restricted to interstitial areas between the plagioclase, where it forms subhedral crystals generally less than 0.5 mm in diameter, mainly heavily clouded by submicroscopic clay particles, and containing a little albite as string perthite; it mostly does not show alteration to sericite.

A few patches of sericite or muscovite, up to 1 mm across and 0.5mm in diameter respectively, are closely associated with the vugs in the section; they could represent the sites of former mafic minerals before alteration of the rock. Opaque minerals are almost all associated with the K-feldspar rich or vuggy interstial areas of the rock. Minor quartz is also associated with these areas, as scattered anhedral crystals to 0.1 mm. The rock would be classed as a syenite (if the plagioclase is, as optically determined, less than An_5).

Opaques are much more abundant in this sample than in any of the preceeding; the distinction is clear between pale-coloured to orangey-brown ?rutile as fine (<30 micron) euhedral crystals, commonly skeletal and possibly replacing some other former Fe-Ti oxide mineral, and deep red-brown ?pseudobrookite or Fe-rich rutile as coarser (<0.2 mm) crystals. There are traces of microcrystalline to amorphous pale yellow-brown limonite, mainly as intergranular stains but in places as aggregates up to 30 microns across.

Craig H.B. Leitch, Ph.D., P.Eng (604) 653-9158
492 Isabella Point Road, Salt Spring Island, B.C. V8K 1V4



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