GEOLOGICAL REPORT

ON THE

NASH PROPERTY

Vernon Mining Division
British Columbia

Latitude 50 18 North
Longitude 119 32 West
NTS 82L/5E,6W

FOR

PROSPERITY GOLD CORPORATION

BY

N.C. CARTER, PH.D. P.ENG.

March 1, 1990

N.C. CARTER, Ph.D., P.Eng.
CONSULTING GEOLOGIST

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SUMMARY

Prosperity Gold Corporation owns 13 Modified Grid mineral claims known collectively as the NASH property which is situated west of Vernon in in the Okanagan area of south-central British Columbia.

The western half of the NASH property is underlain by a sequence of Tertiary volcanic rocks which have demonstrated potential for epithermal gold-silver mineralization at several localities in the Okanagan area. Exploration work to date on the property, including geological mapping, geophysical surveys and rock and soil geochemistry,has outlined a 3 by 0.75 km area underlain by felsic fragmental volcanic rocks. This unit, where exposed, exhibits varying degrees of silicification and contains geochemically anomalous gold and silver values. These anomalous values are considered to be significant when compared to a nearby epithermal gold-silver prospect in a similar geological setting.

Additional exploratory work is warranted with an initial phase recommended to include further soil sampling and a program of reverse circulation drilling at an estimated cost of $100,000. A Phase II program, estimated to cost $400,000, and including diamond drilling, would be predicated on receipt of positive results from the Phase I program.

INTRODUCTION

Prosperity Gold Corporation holds title to the NASH property which consists of 246 mineral claim units and is situated west of Vernon in south-central British Columbia.

This report, prepared at the request of Prosperity Gold Corporation, is based on a personal examination of parts of the property November 10,1989 and on results of a 1989 exploration program conducted by Stetson Resource Management Corporation.

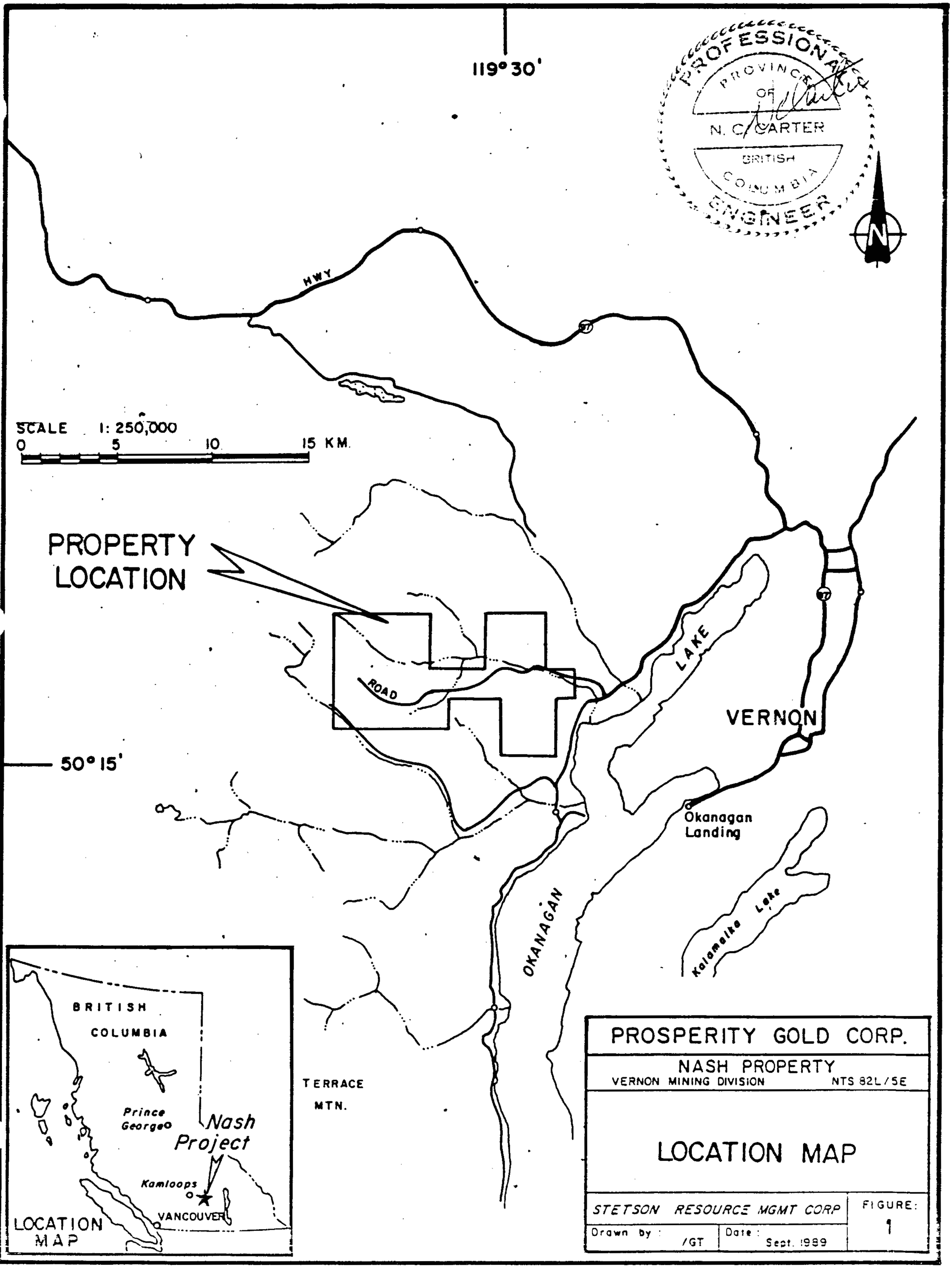
Various published and unpublished reports and maps pertaining to the geological setting of the property area and nearby mineral deposits have been reviewed and these are listed in the References section of this report.

LOCATION AND ACCESS

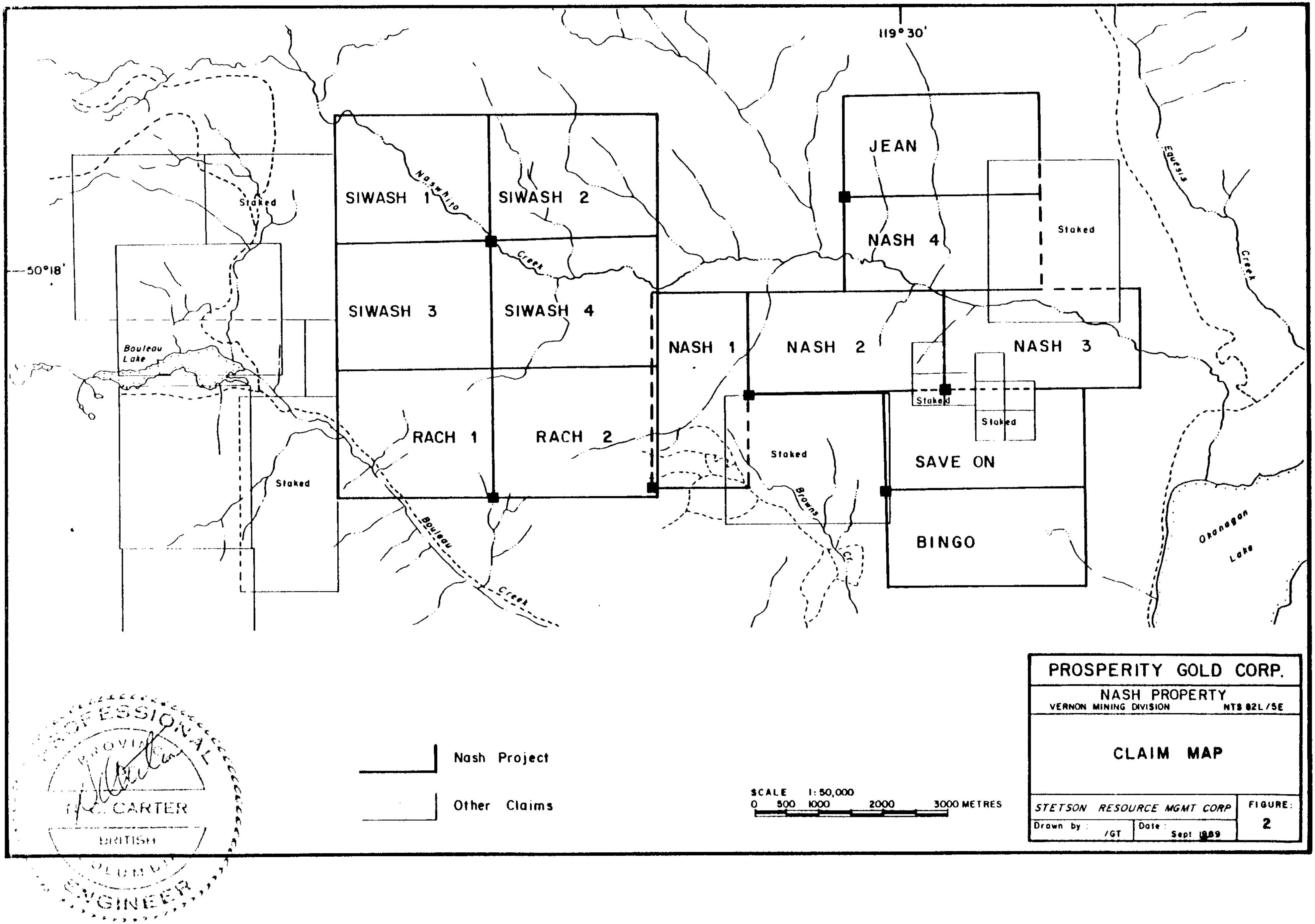
The NASH property is situated 20 km west of Vernon in south-central British Columbia (Figure 1).

The property is centred on Naswhito Creek which drains into the north end of Okanagan Lake. The geographic centre of the property is at latitude 50 18' North and Longitude 119 32' West in NTS map-areas 82L/5E and 6W.

Access is via paved highway from Vernon to the west side of Okanagan Lake where a system of logging roads up Naswhito Creek provides good access to most parts of the claims area.



119° 30'
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
N. C. CARTER
N
HWY
SCALE 1: 250,000
0 5 10 15 KM.
PROPERTY LOCATION
ROAD
LAKE
VERNON
50° 15'
Okanagan Landing
OKANAGAN
Kalamalka Lake
TERRACE MTN.
BRITISH COLUMBIA
Prince George
Nash Project
Kamloops
VANCOUVER
LOCATION MAP
PROSPERITY GOLD CORP.
NASH PROPERTY
VERNON MINING DIVISION
NTS 82L/5E
LOCATION MAP
STETSON RESOURCE MGMT CORP
FIGURE: 1
Drawn by: /GT
Date: Sept. 1989



119°30'
50°18'
SIWASH 1
SIWASH 2
SIWASH 3
SIWASH 4
RACH 1
RACH 2
JEAN
NASH 4
NASH 1
NASH 2
NASH 3
SAVE ON
BINGO
Staked
Naswhito Creek
Bouleau Lake
Bouleau Creek
Browns Cr.
Equesis Creek
Okanagan Lake
Nash Project
Other Claims
SCALE 1:50,000
0 500 1000 2000 3000 METRES
PROSPERITY GOLD CORP.
NASH PROPERTY
VERNON MINING DIVISION
NTS 82L/5E
CLAIM MAP
STETSON RESOURCE MGMT CORP
FIGURE: 2
Drawn by: /GT
Date: Sept 1989
PROFESSIONAL ENGINEER
CARTER
BRITISH

PHYSICAL FEATURES

The NASH property is situated in an area of moderate topography near the eastern margin of the Thompson Plateau in south-central British Columbia.

Elevations within the property area range from 530 metres near Okanagan Lake to more than 1675 metres at the western claims boundary. The central and western claims cover an upland plateau between Naswhito and Bouleau Creeks and a south-facing slope on the north side of Naswhito Creek (Figure 3).

Although the area is subject to limited precipitation, typical of the Okanagan region, water supply is abundant in Naswhito and Bouleau Creeks.

Much of the claims area is tree-covered with stands of fir, cedar and lodgepole pine. Active logging is underway in the western property area.

Bedrock is best exposed along recent logging roads and on some of the steeper slopes; much of the property is covered by locally thick deposits of glacial till.

HISTORY

The lower reaches of Naswhito Creek were worked for placer gold in the late 1800's, prior to settlement in the Okanagan valley. Between 1889 and 1895, recorded annual production varied between 60 and 100 ounces (Jones,1959). Various hydraulic operations were undertaken after 1914 and the total recorded production from the creek is approximately 1,600 ounces.

Lode copper and gold mineralization was discovered in the area of the placer workings on Naswhito Creek 3 km upstream from Okanagan Lake prior to 1900. These include the I.O.U. and Goodenough occurrences which are covered by current claims within or adjacent to the eastern part of the NASH claim block. Recent work on the Goodenough property was carried out by Cominco Ltd. in the late 1970's.

An area west of the present NASH claims and north of Bouleau Lake was investigated on behalf of Chevron Resources Ltd. in 1984 by way of prospecting and soil sampling (Longe,1984). The same year, much of the area of the current claims was covered by a geochemical survey by Golden Porphyrite Ltd. (Nelles,1984).

The present claims were located on behalf of Prosperity Gold Corporation in mid 1988. Exploration work completed to date includes bulk heavy mineral sampling along Naswhito Creek and tributaries and geological mapping, surface magnetometer and VLF-EM surveys and rock and soil sampling in the western property area.

REGIONAL GEOLOGICAL SETTING

Okanagan Lake and valley are the physiographic expressions of a major fault system which defines the boundary between the Omineca tectonic belt on the east and the Intermontane belt on the west. The NASH property is situated near the eastern margin of the Intermontane belt which in south-central British Columbia includes Paleozoic and Mesozoic layered rocks which are intruded by granitic plutons and overlain by Tertiary volcanics and lesser sedimentary rocks.

Oldest rocks exposed west of Okanagan Lake are clastic sediments, limestones, andesitic flows and fragmental rocks and metamorphic equivalents of the late Paleozoic Cache Creek assemblage. These are intruded by granitic rocks of the mid- to late Jurassic Okanagan and Pennask batholiths.

The intrusive and older rocks are unconformably overlain by erosional remnants of Tertiary volcanic rocks, part of the Kamloops Group of Eocene age. These outliers border Okanagan Lake and where complete sections are present, include a basal sedimentary sequence which is overlain by andesitic and trachytic flows, felsic domes and fragmental rocks, massive andesitic lavas and in some areas, younger (Miocene) olivine basalts (Church,1982). A syenite stock on Whiteman Creek, 10 km south of Naswhito Creek, is believed to be a feeder for some of the Tertiary volcanics.

Known mineral deposits and occurrences west of Okanagan Lake include the Brenda porphyry molybdenum-copper mine on the west margin of the mid-Jurassic Pennask batholith. Granitic rocks of similar age which make up the Okanagan batholith are known to host one former gold-base metal producer, the small White Elephant deposit north of Shorts Creek. Mineralization is associated with a quartz lens.

A number of quartz vein deposits containing gold, silver and base metals are hosted by late Paleozoic and Mesozoic volcanic and sedimentary rocks north and west of Vernon. Many of these occupy splay faults related to the northwest trending Louis Creek fault and/or the north trending Okanagan fault system (Meyers and Taylor,1989).

Cache Creek assemblage calcareous sediments and volcanic rocks bordering the lower reaches of Naswhito Creek host two known mineral occurrences. The I.O.U. occurrence is a 1.8 metre wide quartz vein with gold and copper values. The Goodenough prospect includes a 1.5 metre wide west-northwest striking quartz vein in argillites which contains galena, sphalerite, chalcopyrite and argentite. The principal zone of mineralization is a 10 by 600 metre zone of disseminated pyrite, chalcopyrite, magnetite and bornite in cherty basaltic tuffs adjacent to a quartz diorite porphyry plug.

There is some suggestion that this zone is stratigraphically controlled (Osatenko,1977).

Epithermal gold-silver deposits and occurrences hosted by Tertiary volcanic rocks have been the focus of much of the recent exploration work in the Okanagan area. Several significant deposits have been identified in this geological environment throughout the Okanagan valley.

Near Okanagan Falls in the southern Okanagan, 53240 tonnes with recovered grades of 11.3 g/t gold and 197.8 g/t silver were mined from the Dusty Mac property between 1969 and 1976. Gold and silver values are associated with quartz breccia zones developed along northwest faults in a laharic andesite unit near the top of the Tertiary volcanic sequence. At the nearby Vault property, precious metals values occur with chalcedonic quartz veining in trachyandesite tuffs which are also near the top of the sequence.

Several gold-silver occurrences in Tertiary volcanic rocks are known in the northern Okanagan. To date, the most significant of these is the Brett property of Huntington Resources Inc. which is situated on Whiteman Creek due south of Bouleau Lake and 6 km southwest of the western NASH property. Some 9400 metres of diamond and reverse circulation drilling had been completed on the Brett property by early 1989 (Miller,1989) and exploration work is continuing under a joint venture involving Huntington Resources and Corona Corporation.

An initial heavy mineral geochemical survey in which anomalous gold and silver values were detected was followed by detailed soil sampling which outlined coincident gold, silver, arsenic and mercury anomalies. According to Gruenwald(1984), gold values in soil samples ranged from 5 - 410 ppb with a mean or background value of 10 ppb. Probable anomalous values included those between 26 and 40 ppb with higher values being regarded as definitely anomalous. Initial rock sampling returned gold values of between 5 and 90 ppb and silver values in the 0.1 to 9.4 ppm range.

A number of gold-silver bearing quartz veins were found by subsequent mapping and prospecting and to date most work has been directed to four principal zones. These are associated with northwest and northerly trending shear zones in variably altered andesite and basalt lavas and fragmental rocks which unconformably overlie Jurassic granitic rocks of the Okanagan batholith (Meyers,1988). The volcanics,which are believed to be part of the lower Tertiary sequence in this area (Church,1980), are intruded by northwest swarms of feldspar porphyry dykes which occupy some of the northwest shear zones and may be related to the syenite stock which cuts older granitic rocks several km to the east on Whiteman

Creek.

Two styles of epithermal gold-silver mineralization on the Brett property include a widespread gossan zone in brecciated volcanic rocks featuring stockwork veining and silica flooding. This zone is characterised by open space breccias and drusy cavities are common in quartz veinlets and silicified areas (Gruenwald,1984). Intense argillic alteration and widespread limonite on fractures makes identification of the original rock type difficult although Gruenwald (1984) suggests the gossan zone may be developed in a felsic volcanic unit.

A north-northwest shear zone which dips steeply west and has a known strike length of 1.5 km is host to several gold-silver bearing quartz vein stockworks. These zones are best developed in a more porous, tuffaceous volcanic unit some 40 metres thick (Miller,1989). Wallrocks marginal to this main zone are variably bleached and limonite stained. Precious metal mineralization consists of electrum, native gold and argentite (Meyers,1988).

Two other precious metals zones are known between the main and gossan zones. All zones are reflected by anomalous gold values (>50 ppb) in soils. A number of unexplained gold in soil anomalies occur between and peripheral to known mineralized zones (Miller,1989).

PROPERTY GEOLOGY, GEOPHYSICS AND GEOCHEMISTRY

Geology

Principal geological features of the NASH property and adjacent area are illustrated on Figure 3.

The eastern claims are underlain by a northwest striking late Paleozoic (Permian?) Cache Creek assemblage of limestone, quartzite, argillite and volcanic rocks which are intruded by granitic rocks of the late Jurassic Okanagan batholith. Small granitic stocks, satellitic to the northern margin of the batholith, also cut these older layered rocks (Jones,1959; Osatenko,1977).

The granitic and layered rocks are unconformably overlain in the central and western property area by an early Tertiary (Eocene) volcanic sequence which is part of the Terrace Mountain Tertiary outlier (Church,1980). Mapping by Church indicates four principal volcanic units within the Tertiary sequence in the Naswhito Creek - Bouleau Lake area, three of which are shown on Figure 3. These include a lower unit,comprised of thinly bedded andesite, dacite and lesser basalt flows and pyroclastics and feldspar porphyry andesitic flows (Unit 3 - Figure 3), which is overlain by a rhyolite flow unit (Unit 4 - Figure 3) best developed north of Bouleau Lake. This in turn is overlain by areally extensive massive

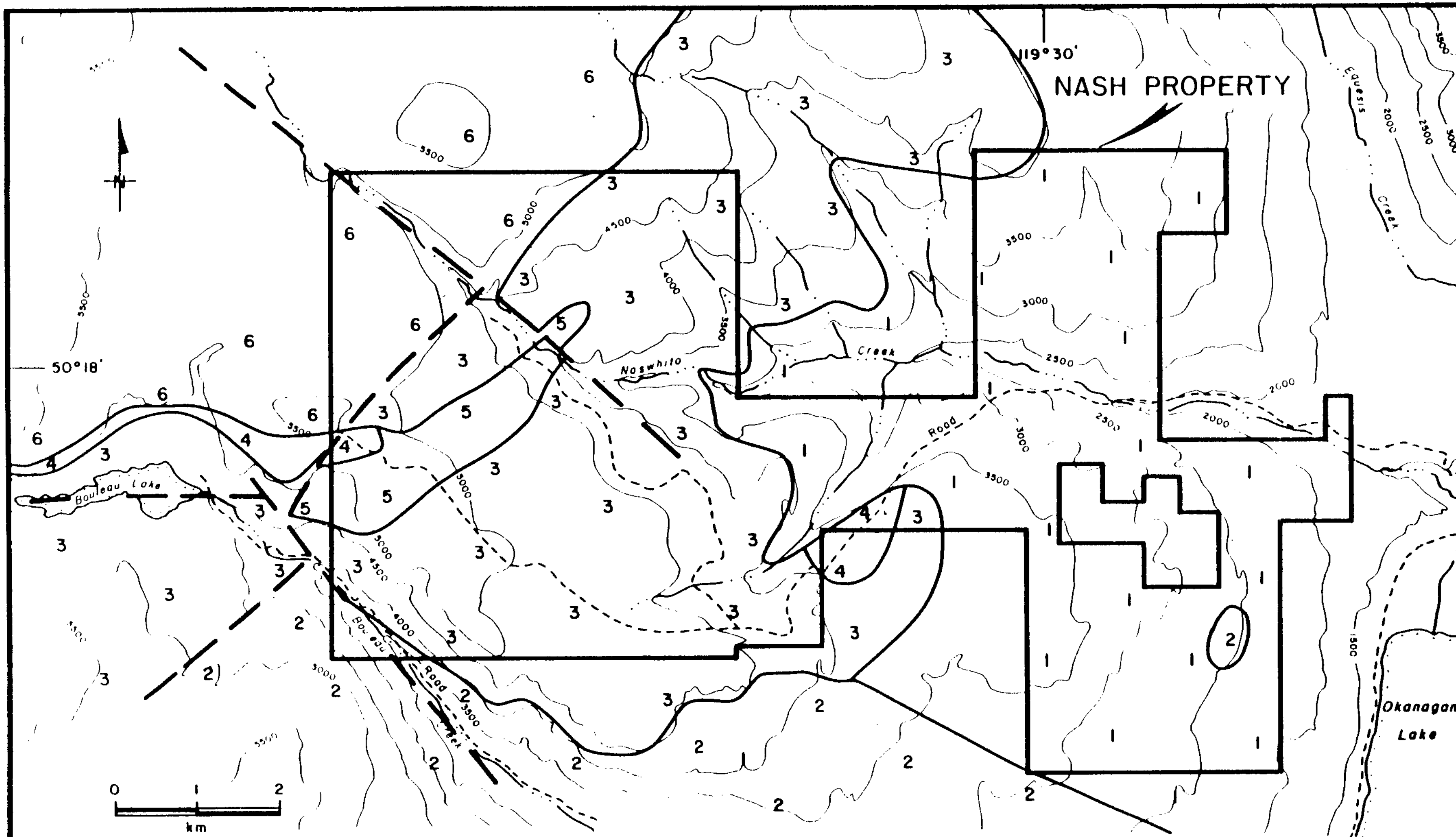


FIGURE 3 - NASH CREEK PROPERTY GEOLOGY

TERTIARY (EOCENE)

6 ANDESITE, DACITE, BASALT

5 FELSIC TUFFS & BRECCIAS

4 RHYOLITE FLOWS

3 ANDESITE FLOWS & PYROCLASTICS

JURASSIC

2 GRANITIC ROCKS

PERMIAN

1 VOLCANICS, SEDIMENTS

GEOLOGICAL BOUNDARY

FAULT

Modified after Jones (1959); Church (1980); Wetherill (1989)

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dacite, andesite and vesicular basalt flows which form the flat upland areas surrounding the headwaters of Naswhito Creek (Unit 6 - Figure 3). Semi-conformable or gradational contacts between the various volcanic units appear to be the norm, but in some cases boundaries are marked by northeast and northwest faults which are particularly evident along Naswhito and Bouleau Creeks (Figure 3).

Detailed mapping in the western claims area (Wetherill,1989) outlined a northeast trending felsic tuff-breccia unit (Unit 5 - Figure 3) which appears to be an extension of the rhyolite unit defined by Church (1980). Rhyolites were also noted in the central claims area (Figure 3).

The felsic fragmental unit, which appears to be fault-bounded in part, is typically buff to cream coloured with both crystal and lithic fragments ranging in size from 2 mm to 5 cm. Limonite and hematite staining on fractures is a common feature.

Silica flooding and and chalcedonic quartz stockworks are most prevalent near the south margin of the felsic unit which,as noted previously, may be fault-bounded. The unit is locally porous with numerous open spaces and drusy cavities are common in silicified zones.

Only minor pyrite was noted in sparse bedrock exposures in spite of the widespread limonite staining. Locally intense clay mineral or argillic alteration occurs in several locations throughout the felsic unit.

Geophysics

Magnetometer and VLF-EM surveys were conducted over 80 km of grid in the western part of the NASH property (Figure 4). Readings were taken at stations 12.5 m apart along northeast - southwest cross-lines established at 100 metre intervals. Instrument used was a Scintrex Omni Plus, a combination magnetometer and VLF-EM receiver.

Principal geophysical features are illustrated on Figure 4. Two significant magnetic features are evident including an area of higher magnetic response near the southern limits of the grid which reflects fine-grained, dark grey magnetic andesites underlying this area.

The magnetic low is partially coincident with the felsic tuff-breccia sequence (Figure 3). The rectilinear nature of the boundaries of this magnetic feature reflect northeast and northwest faults interpreted from offsets of magnetic contours and terminations of some of the stronger VLF-EM conductors (Wetherill,1989).

While both Seattle and Annapolis transmitting stations were used to conduct the VLF-EM survey, the Annapolis frequency gave better definition of the stronger northwest

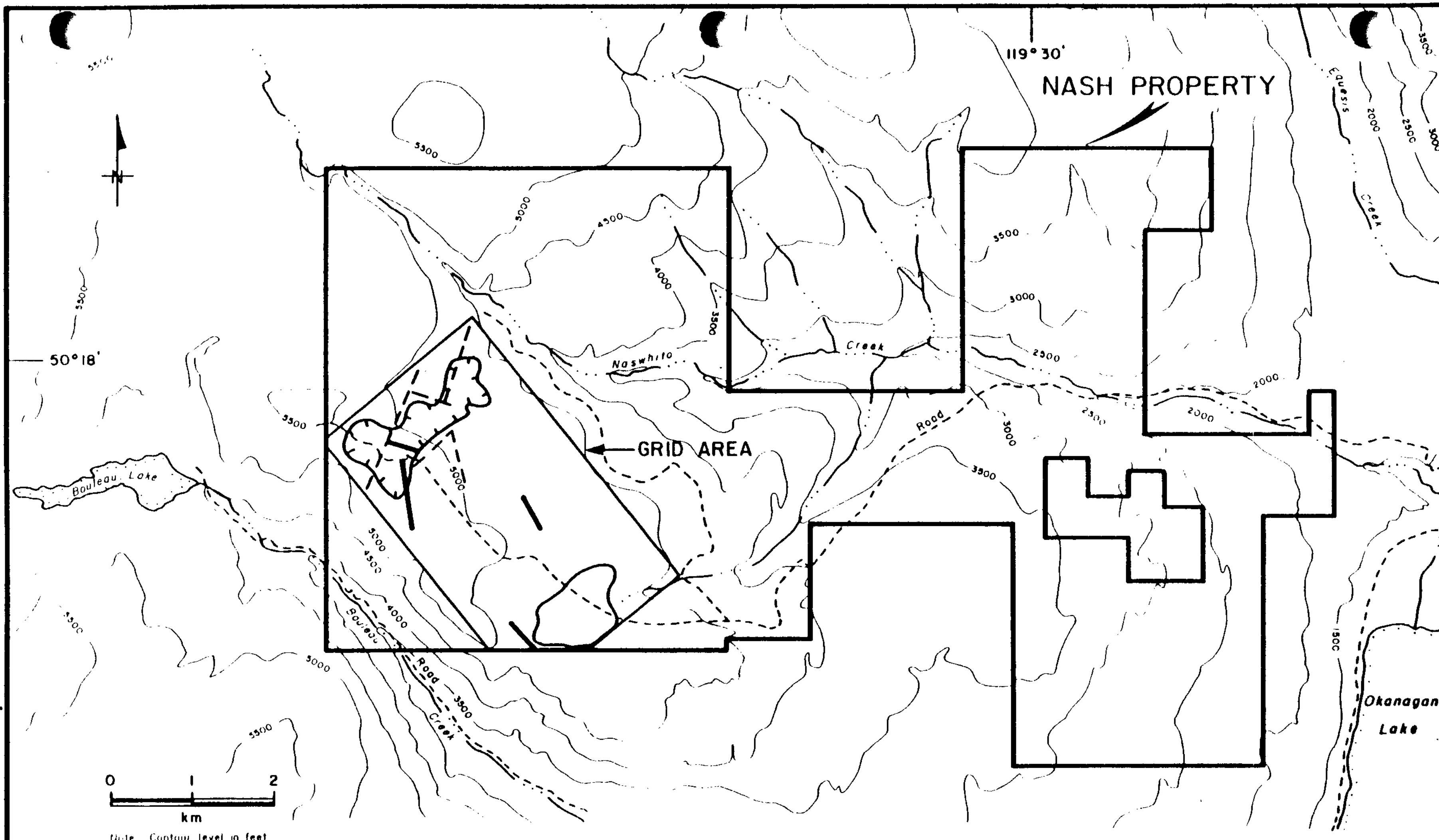

FIGURE 4 – NASH PROPERTY GEOPHYSICS

MAGNETIC LOW
MAGNETIC HIGH
VLF-EM CONDUCTOR
INTERPRETED FAULT

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trending conductive zones. One of these, within the magnetic low area, has a length of 500 metres and is apparently terminated at both ends by interpreted northeast faults. Within and marginal to the magnetic low is a northerly trending conductor with an apparent length of 900 metres(Figure 4).

Weaker conductors were noted in the central and southern grid areas.

Geochemistry

20 heavy mineral samples were collected from drainages throughout the property area, principally Naswhito Creek and its tributaries (Figure 5). Samples were analyzed by neutron activation techniques (two 100 g splits from each sample). Seven samples yielded anomalous results as follows:

Sample Number	Au(ppb-split 1)	Au(ppb-split 2)
JW89-1	710	240
RIP89-06	264	525
RIP89-08	5340	60
RIP89-12	<5	3860
RIP89-13	<5	374
RIP89-24	446	349
RIP89-25	2310	9590

Sample JW89-1, from a tributary of Bouleau Creek (Figure 5), may be a reflection of the known western limits of the felsic fragmental volcanic unit. Several samples with interesting gold values were collected from Naswhito Creek and tributaries in the eastern claims area which is

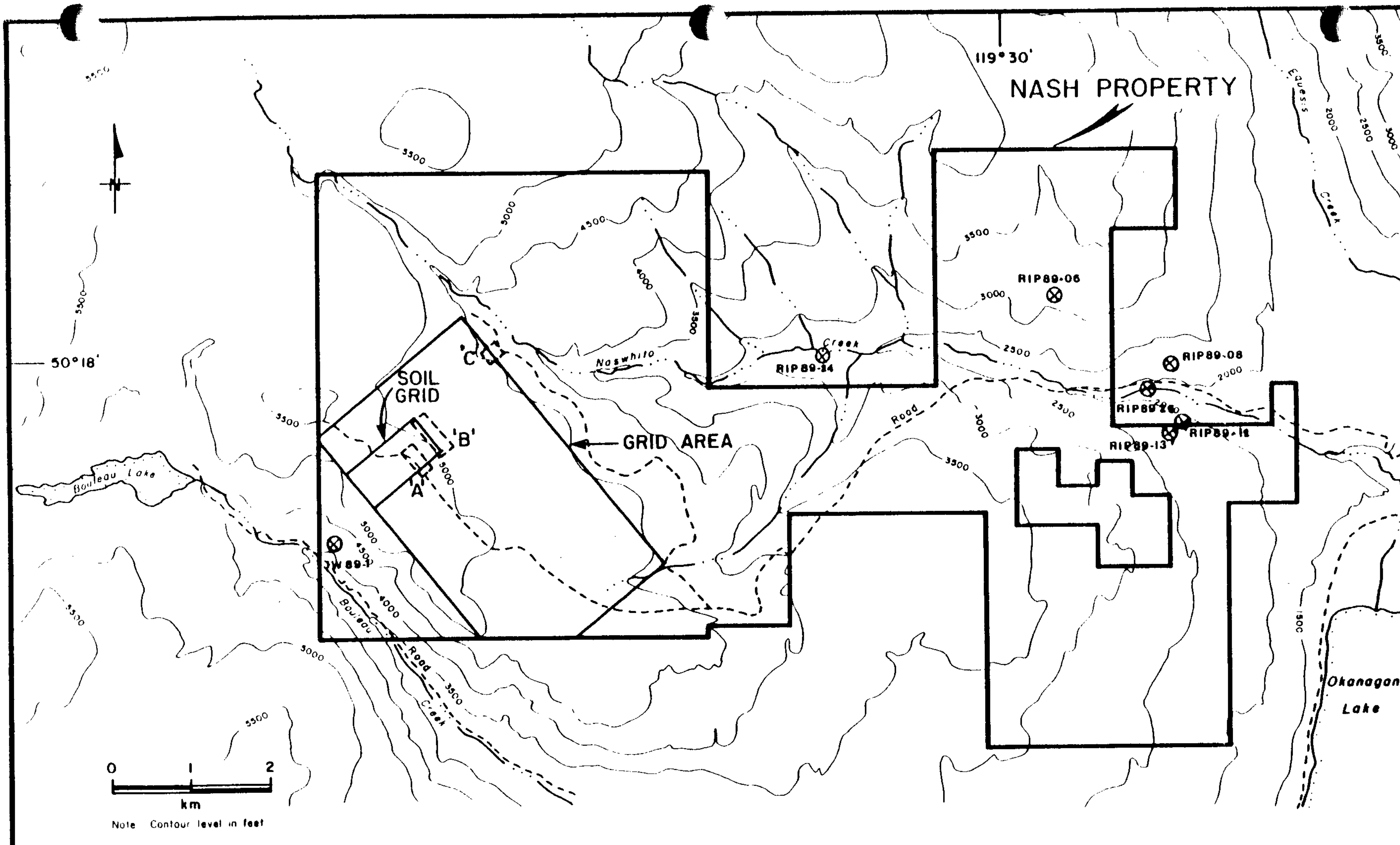

FIGURE 5 – NASH PROPERTY – AREA OF GEOCHEM SAMPLING

Rock Sample Areas

⊗ Heavy Mineral Sample Site

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underlain by an older, late Paleozoic volcanic - sedimentary sequence (Figure 5). While these samples were collected in the vicinity of historic placer gold workings on lower Naswhito Creek, those from tributary streams may indicate possible bedrock source on adjacent mineral claims held by others.

57 rock samples were collected from bedrock exposures in three areas as indicated on Figure 5. All areas are within and/or adjacent to the known limits of the felsic tuff-breccia unit. Most samples collected were select or grab samples from bedrock and sub-outcrop exhibiting silicification, quartz veining and/or clay mineral alteration. The distribution of the samples within the three areas is shown in more detail on Figure 6.

Samples were analyzed for gold and mercury by fire assay and geochemical methods and for 27 major and trace elements by inductively coupled argon plasma (ICP) techniques. Results for gold, mercury, silver and arsenic are listed by area in Appendix I which also includes full laboratory results. Discussion of results is as follows:

Area A

18 rock samples collected within a roughly 400 by 200 metre area include 10 with gold values in excess of 50 ppb.

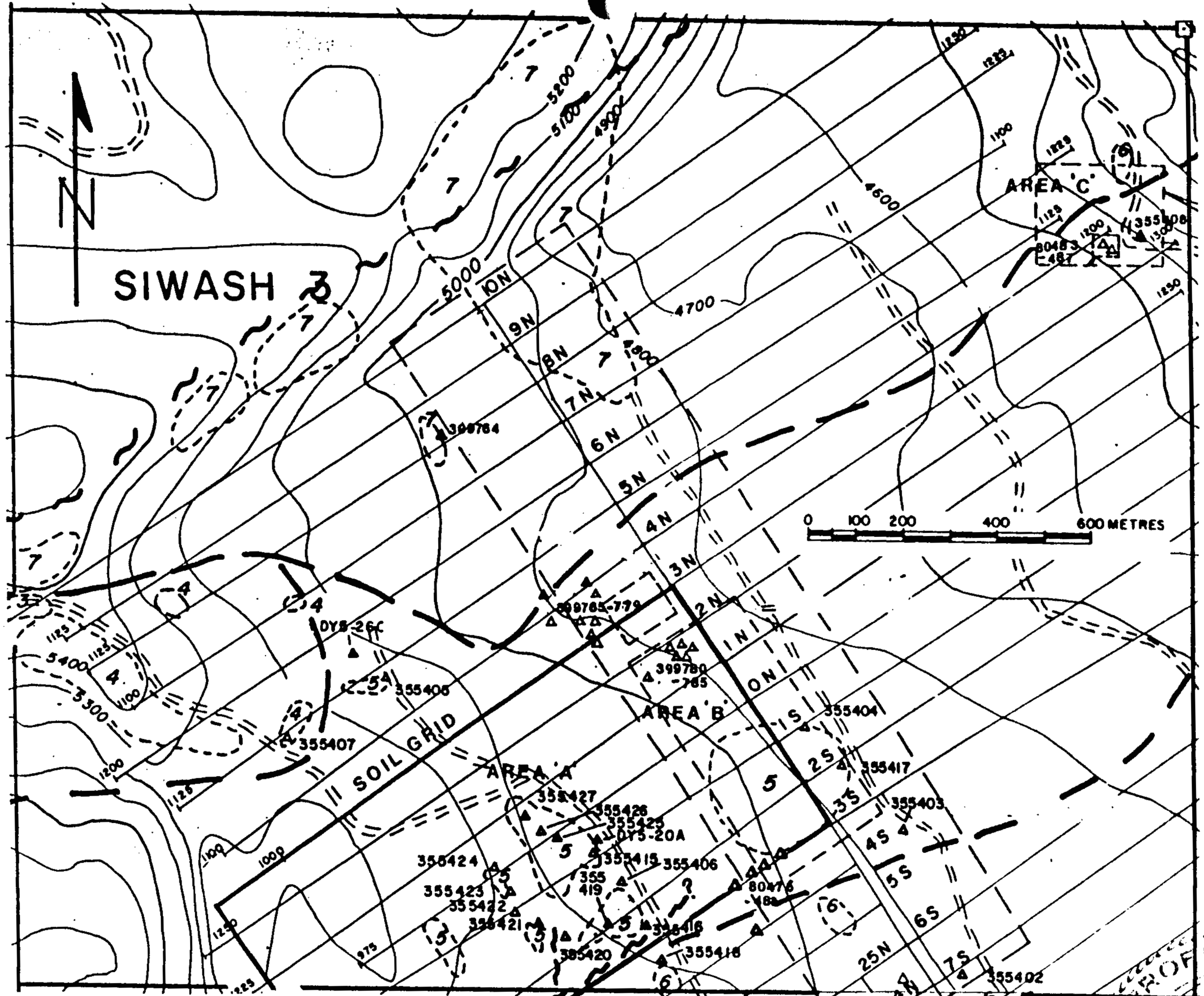


FIGURE 6 - ROCK SAMPLING AREAS

Δ 80476 Rock Sample Site

Many of these are accompanied by elevated silver values ranging from 1.3 to 16.6 ppm. Mercury values are not regarded as being significant and higher arsenic values are not always coincident with samples anomalous in gold and silver.

All samples in Area A are from the felsic fragmental unit and from porphyritic andesites and basalts near the south margin of the felsic unit. The highest values obtained, 5550 ppb gold and 16.6 ppm silver, are from a grab sample of porphyritic basalt containing drusy quartz veinlets but no obvious sulphide minerals.

Much of the felsic unit in this area is variably silicified with no obvious difference in hand specimen character between those with higher gold values and the remainder.

Area B

33 rock samples collected from a 600 by 200 metre area included 8 with gold values of 50 ppb or greater. These are commonly, but not always, accompanied by elevated silver values of more than 2 ppm. Mercury values are low and higher arsenic values are not generally coincident with higher gold and silver.

Samples were collected from the felsic fragmental unit which locally displays intense clay mineral alteration. Limonite staining is widespread but no obvious sulphide minerals were noted (Wetherill,1989).

Higher gold values were obtained from selected samples of chalcedonic quartz veins and drusy quartz flooding. The highest gold value from Area B, 320 ppb, was from a selected sample of amethystine quartz. One high arsenic value was obtained from an iron seep.

Area C

6 samples were collected from near the known eastern limits of the felsic fragmental unit. Half of these have gold values of between 100 and 200 ppb and silver to 12.4 ppm. Higher gold values are associated with drusy quartz and the one high mercury value is associated with sulphide mineralization. The 1045 ppm arsenic value is from a sample of limonitic clay mineral altered felsic rock.

192 soil samples were collected at 25 metre intervals along six 100 metre spaced lines in the northwest part of the main grid as shown on Figure 5. This program was carried out in mid-November,1989 and complete coverage of the grid area was precluded by partial snow cover.

Samples collected were analyzed for gold, silver, arsenic, copper, barium and phosphorous. Values for the first three elements are illustrated on Figures 7 - 9 and full results are contained in Appendix II. Comments on the results are as follows:

Gold

Range: 0-195 ppb
Median: 5 ppb
Mean: 45 ppb
95th %ile: 25 ppb
90th %ile: 16 ppb

Weak to strongly anomalous values (15 - 175 ppb) are concentrated in a 250 metre wide, northwest trending zone in the central part of the grid (Figure 7). The highest value (195 ppb) is an isolated spot high in the northeast grid area.

Silver

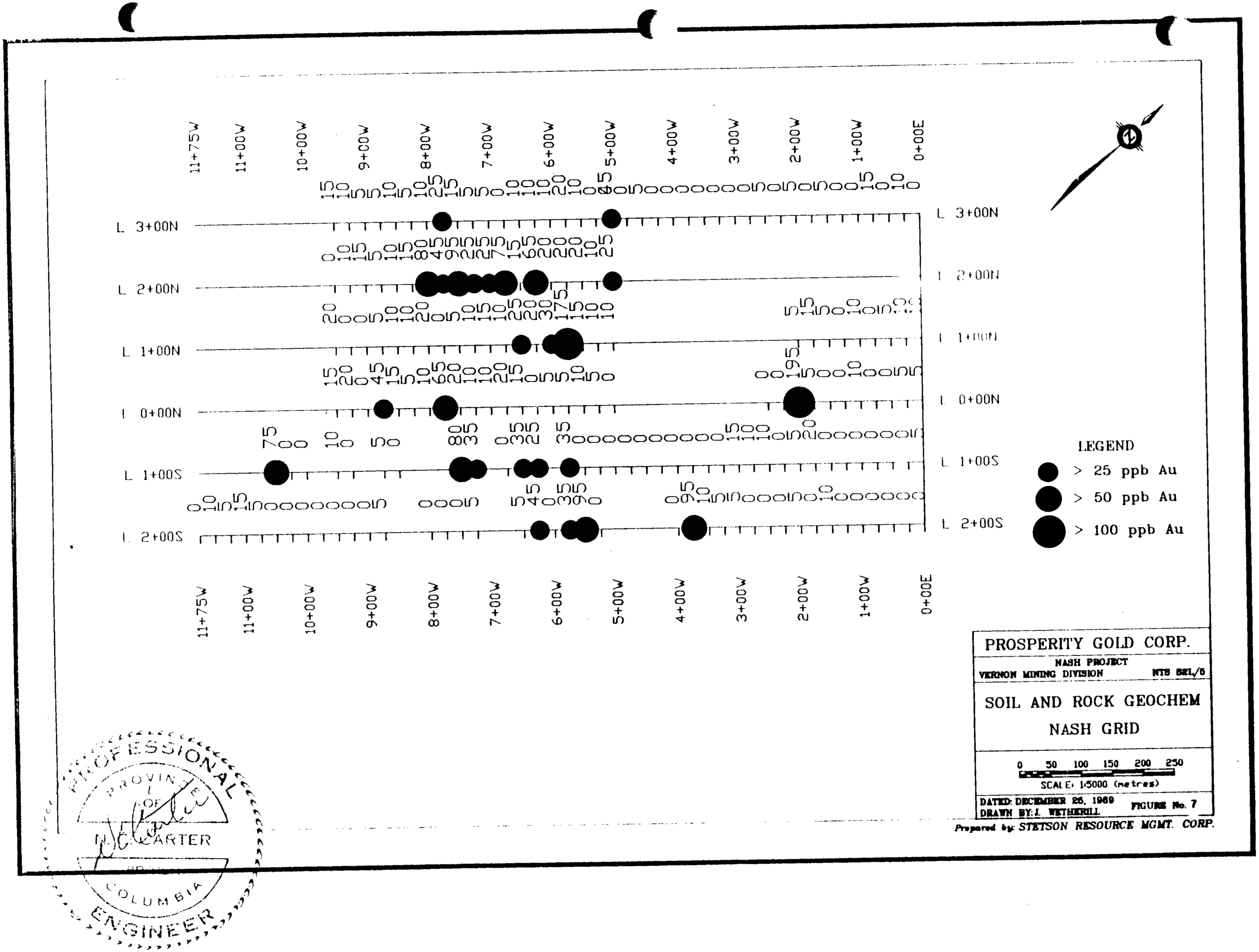
Range: 0.21-4.45 ppm
Median: 2.0 ppm
Mean: 2.24 ppm
95th %ile: 3.10 ppm
90th %ile: 2.8 ppm

High background silver values were obtained throughout the area sampled. Weak to moderately anomalous values show no discernible patterns (Figure 8).

Arsenic

Range: 0-110 ppm
Median: 10 ppm
Mean: 15 ppm
95th %ile: 32 ppm
90th %ile: 25 ppm

Arsenic values are generally low. Modest grouping of anomalous values in the central part of the grid is partially coincident with more widespread anomalous gold values (Figure


L 3+00N
L 2+00N
L 1+00N
L 0+00N
L 1+00S
L 2+00S
11+75W
11+00W
10+00W
9+00W
8+00W
7+00W
6+00W
5+00W
4+00W
3+00W
2+00W
1+00W
0+00E
LEGEND
> 25 ppb Au
> 50 ppb Au
> 100 ppb Au
PROSPERITY GOLD CORP.
NASH PROJECT
VERNON MINING DIVISION
NTS 82L/5
SOIL AND ROCK GEOCHEM
NASH GRID
0 50 100 150 200 250
SCALE: 1:5000 (metres)
DATED: DECEMBER 25, 1989
DRAWN BY: J. WETHERILL
FIGURE No. 7
Prepared by: STETSON RESOURCE MGMT. CORP.
PROFESSIONAL
PROVINCE OF
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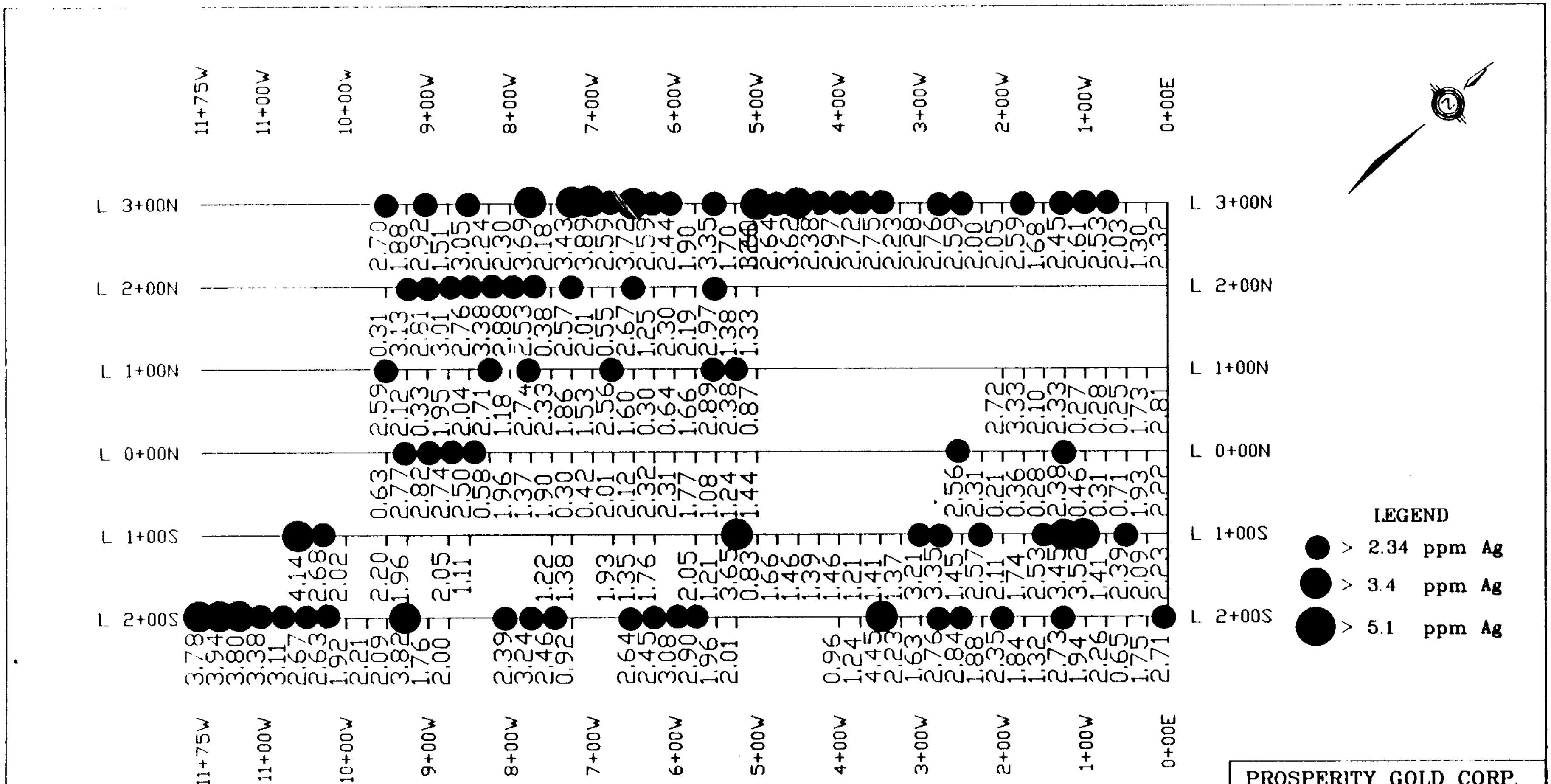
COLUMBIA
ENGINEER



PROSPERITY GOLD CORP.

NASH PROJECT

VERNON MINING DIVISION NTS 82L/5

SOIL AND ROCK GEOCHEM

NASH GRID

0 50 100 150 200 250

SCALE: 1:5000 (metres)

DATED: DECEMBER 26, 1989

DRAWN BY: J. WETHERILL

FIGURE No. 8

Prepared by: STETSON RESOURCE MGMT. CORP.

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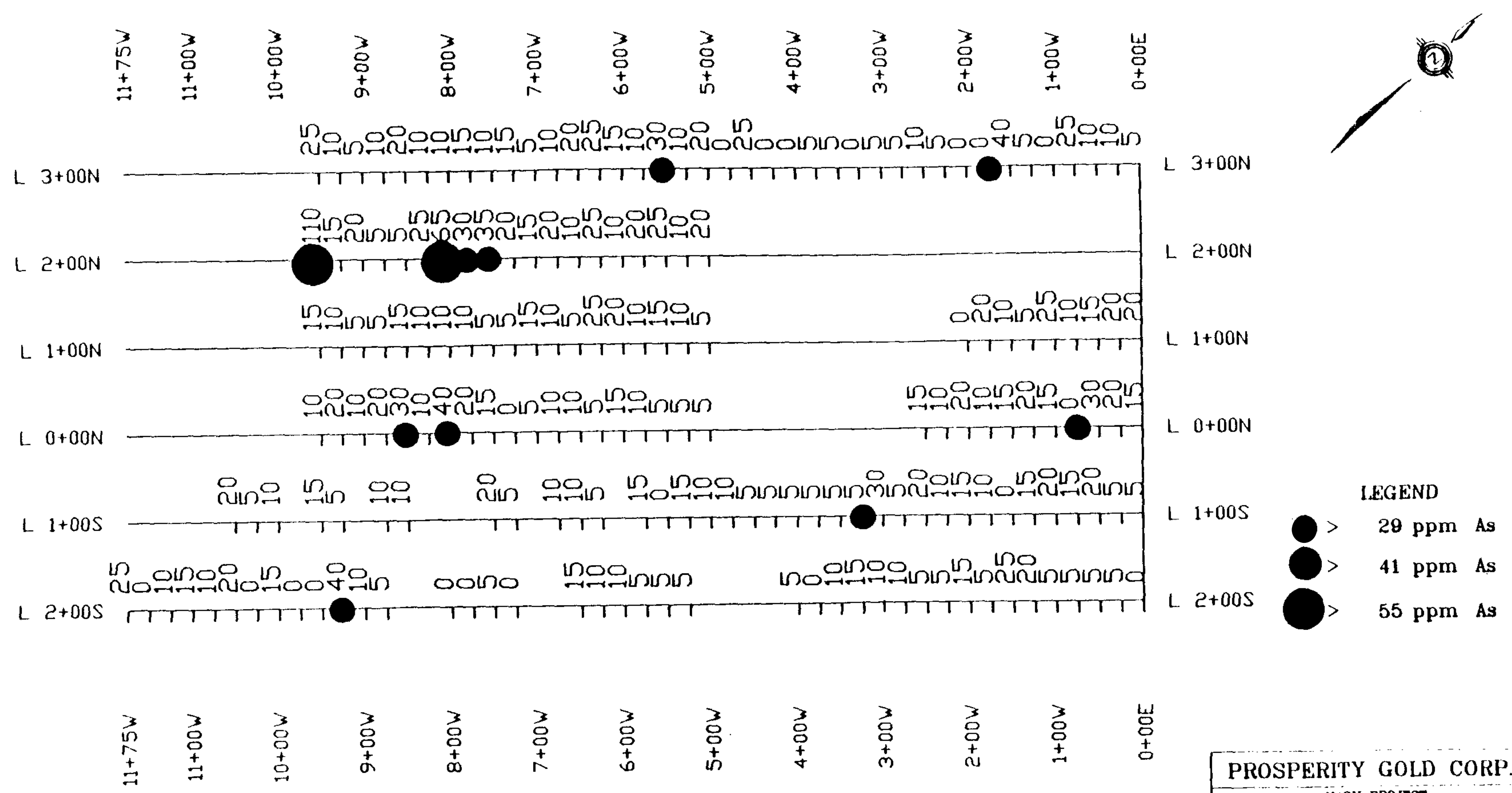

PROSPERITY GOLD CORP.

NASH PROJECT

VERNON MINING DIVISION — NTS 82L/6

SOIL AND ROCK GEOCHEM

NASH GRID

SCALE: 1:5000 (metres) — 0 50 100 150 200 250

DATED: DECEMBER 26, 1989 — DRAWN BY: J. WETHERILL — FIGURE No. 9

Prepared by: STETSON RESOURCE MGMT. CORP.

9).

Copper values in soil samples are abnormally low, generally less than 10 ppm. Barium values have a range of 10 to 270 ppm. Anomalous values in excess of 200 ppm, are crudely coincident with anomalous gold values but are not as widespread.

CONCLUSIONS

Rock sampling in three areas of limited bedrock exposure within an extensive area of Tertiary felsic fragmental volcanic rocks in the western part of the NASH property has yielded anomalous values in gold, silver and pathfinder elements. Anomalous gold values in soils southwest of and upslope from one of these bedrock areas suggests that much of the area underlain by felsic fragmental rocks may have potential for epithermal gold-silver mineralization.

These geochemical results are considered to be particularly encouraging when compared with geochemical signatures on the nearby Brett gold-silver prospect. Furthermore, descriptions of favourable host rocks on the Brett prospect suggest analogies with the felsic unit in the western NASH claims.

Additional exploration work is definitely warranted for the NASH claims. While the felsic volcanic unit represents the principal target area, only limited work has been undertaken in the remainder of the property, much of which is underlain by an older, Paleozoic sequence which has demonstrated potential for base and precious metals mineralization.

RECOMMENDATIONS

Results from the limited soil geochemical survey undertaken over part of the felsic fragmental volcanic unit demonstrate the value of this method. It is recommended that soil sampling of the same density be completed over that part of the existing grid which covers the known limits of the felsic unit and that reconnaissance sampling be undertaken over the remainder of the grid.

Areas of anomalous precious metals values should be further investigated by a program of reverse circulation drilling. Numerous logging roads in the western property area facilitate this approach and ideally, inclined holes are recommended to ensure proper sampling of anticipated near vertical structures.

Reconnaissance stream sediment and soil sampling, coupled with prospecting, should be undertaken in the eastern claims area, focussed initially in the area of an anomalous heavy mineral sample on the NASH 4 claim.

A Phase II program, contingent on receipt of encouraging results from the recommended first phase work, would include trenching and diamond drilling.

COST STATEMENT **NASH PROJECT/VERNON, B.C.**

Project Preparation

Printing	$ 18.00
Maps	$ 35.00
J.Wetherill 1 day @ $225/day	$ 225.00

	$ 278.00

Field Personnel

Geologists		
N.Carter (Nov.10)	1 day @ $350/day	$ 350.00
M.McCallum (Aug.24-Sept.16)	24 days @ $472/day	$11,328.00
J.Wetherill (Nov.10, Aug.24-28)	6 days @ $250/day	$ 1,500.00
Field Technicians		
R.Herzig (Nov.14-Nov.17)	4 days @ $175/day	$ 700.00

		$13,178.00

Support

Mobilization/Demobilization		
Ford Bronco	2 days @ $60.00/day	$ 120.00
	790km @ $0.15/km	$ 118.50
F260 4x4	28 days @ $60.00/day	$ 1,680.00
	2,280km @ $0.15/km	$ 342.00
Motel at Town of Vernon		
Room	35 mandays @ 23.75/manday	$ 831.25
Board	35 mandays @ 17.00/manday	$ 595.00
General supplies		$ 89.00
Gasoline		$ 480.00
Communication (B.C.Tel)		$ 115.00
Shipping		$ 52.00

		$ 4,422.25

Equipment Rental

Field Equipment	10 days @ $15/day	$ 150.00

Assays

Soil

29 element ICP, fore assay all & prep
192 soil samples @ $15.00/sample $ 2,2880.00

Petrographics

Rock

Hand samples description, thin sections and staining 25 rock samples @ @ $163.21/sample. $ 4,080.32

Report Writing

M.McCallum	7 days @ $472/day	$ 3,304.00
N.Carter	3 days @ $350/day	$ 1,050.00
J.Wetherill	2 days @ $225/day	$ 450.00
Drafting	2 days @ $200/day	$ 400.00
Reproduction		$ 22.00
Supplies, Typing, Copying		$ 48.00
		$ 5,274.00

Subtotal	$30,262.57
12% Admin. Overhead	$ 3,631.51
TOTAL	$33,894.08

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CERTIFICATE

I, NICHOLAS C. CARTER, of 1410 Wende Road, Victoria, British Columbia, do hereby certify that:

1. I am a Consulting Geologist registered with the Association of Professional Engineers of British Columbia since 1966.

2. I am a graduate of the University of New Brunswick with B.Sc.(1960), Michigan Technological University with M.S.(1962) and the University of British Columbia with Ph.D.(1974).

3. I have practised my profession in eastern and western Canada and in parts of the United States for more than 25 years.

4. The foregoing report is based on a personal examination of parts of the NASH property November 10,1989, and on a review of published and unpublished reports and maps pertaining to results of a recent exploration program on the property and its regional geological setting.

5. I hold no interest, directly or indirectly, nor do I expect to receive any interest in the NASH mineral property or the securities of Prosperity Gold Corporation.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
N. C. CARTER

N.C. Carter, Ph.D. P.Eng.

Victoria, B.C.
March 1,1990

APPENDIX I

ROCK GEOCHEMISTRY

RESULTS OF ROCK SAMPLING

Sample No.	Gold(ppb)	Mercury(ppb)	Silver(ppm)	Arsenic(ppm)
AREA A				
355405	5	10	0.1	16
406	10	10	0.1	28
407	5	10	0.4	141
415	120	20	5.2	68
416	40	10	0.2	22
418	5550	10	16.6	24
419	80	10	0.5	20
420	5	10	0.5	16
421	70	30	0.4	40
422	20	50	0.7	603
423	5	10	2.6	10
424	140	60	1.3	45
425	990	60	18.1	70
426	160	60	5.7	143
355427	30	80	3.8	15
DY5-26A	210	30	4.9	34
-26C	50	20	1.4	13
-26D	60	20	0.7	21
AREA B				
80476	5	20	0.1	27
477	50	20	1.9	25
478	30	60	0.5	8
479	5	10	0.2	23
480	5	10	0.5	49
481	680	10	3.8	10
80482	5	10	1.1	91
355402	20	10	0.1	29
403	10	10	0.1	22
404	5	10	0.1	33
355417	30	10	0.4	19
399764	5	10	0.1	2
765	5	20	0.1	75
766	5	10	0.1	99
767	5	10	0.2	30
768	10	10	1.7	102
769	5	40	1.3	673
770	5	20	1.1	45
771	5	20	0.4	80
772	10	50	0.2	61
399773	5	30	0.9	122

Sample No.	Gold(ppb)	Mercury(ppb)	Silver(ppm)	Arsenic(ppm)
399774	5	10	0.1	39
775	5	30	0.1	49
776	70	50	1.8	83
777	60	70	0.1	76
778	130	40	0.3	29
779	5	20	0.1	108
780	320	10	2.7	27
781	10	10	0.4	30
782	30	10	2.6	91
783	5	10	0.1	174
784	100	20	1.1	181
399785	150	40	2.1	107
AREA C				
355408	5	30	0.1	4
80483	110	250	2.4	136
484	200	20	12.4	52
485	200	30	2.2	179
486	5	30	0.1	1045
80487	5	10	0.4	166

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6329 BERESFORD STREET, BURNABY, B.C. V5E 1B3 , PH: 435-8376 / FAX: 435-9746

** GEOCHEMICAL REPORT **

To: Stetson Resource Management Corp.
13 - 1155 Melville Street
Vancouver, B.C.
V6E 4C4

Number: 89171
Date: May 25, 1989
Proj.:

Attn: Bill Dynes

	Au ppb	Hg ppb
355401	< 5	60
355402	20	10
355403	10	10
355404	< 5	10
355405	< 5	10
355406	10	10
355407	< 5	10
355408	< 5	30
355409	10	60
355410	< 5	410

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6329 BERESFORD STREET. BURNABY, B.C. V5E 1B3 / PH: 435-8376 / FAX: 435-9746

** CERTIFICATE OF ANALYSIS **

To: Stetson Resource Management Corporation
13 - 1155 Melville Street
Vancouver, B.C.
V6E 4C4

Number: 89171
Date: May 26, 1989
Proj.:

Attn: Bill Dynes

Type of Analysis: ICP-AES

	Al	Ag	As	B	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Mo
	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm
355401	1.01	0.1	29	91	331	2	2	0.71	1	3	12	25	4.35	5
355402	0.19	0.2	52	9	48	1	2	0.03	1	2	294	8	0.88	ND
355403	0.15	0.1	22	5	9	1	3	0.02	1	1	232	6	0.40	ND
355404	0.39	0.1	33	5	36	1	2	0.04	1	2	80	4	0.75	ND
355405	0.19	0.1	16	5	47	1	3	0.02	1	1	194	4	0.79	ND
355406	0.22	0.1	28	5	94	1	2	0.02	1	1	195	6	1.58	ND
355407	1.03	0.4	141	5	53	2	7	1.36	2	2	21	5	0.83	ND
355408	0.33	0.1	4	5	31	1	6	0.21	1	1	53	10	1.38	ND
355409	0.64	0.1	10	5	22	2	2	0.11	1	13	52	28	6.01	ND
355410	0.58	0.1	26	264	36	1	2	0.07	1	8	25	55	4.76	ND

Duncan Sanderson

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To: Stetson Resource Management Corp.
13 - 1155 Melville Street
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V6E 4C4

Number: 89171
Date: May 26, 1989
Proj.:

Attn: Bill Dynes

Type of Analysis: ICP-AES

	La	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sr	Ti	V	Zn
	ppm	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	%	ppm	ppm
355401	36	0.26	51	3	0.06	5	0.13	17	10	369	0.02	37	26
355402	106	0.03	83	21	0.02	3	0.02	25	5	16	0.02	14	20
355403	49	0.02	29	17	0.01	3	0.01	15	2	6	0.01	6	8
355404	105	0.16	159	6	0.01	1	0.02	17	2	27	0.01	12	52
355405	61	0.03	36	18	0.01	2	0.01	15	5	7	0.02	6	6
355406	66	0.02	70	20	0.01	3	0.02	15	2	12	0.01	10	34
355407	118	0.22	712	3	0.01	1	0.03	25	10	80	0.01	9	30
355408	35	0.12	491	4	0.02	2	0.06	17	2	25	0.04	25	53
355409	7	0.20	1302	4	0.03	6	0.04	6	2	6	0.01	131	109
355410	5	0.07	154	2	0.01	12	0.03	2	9	5	0.01	21	45

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** GEOCHEMICAL REPORT **

To: Stetson Resource Management Corp.
13 - 1155 Melville Street
Vancouver, B.C.
V6E 4C4

Number: 89187
Date: May 31, 1989
Proj.:

Attn: Bill Dynes

	Au ppb	Hg ppb
DY5-26A	210	30
DY5-26C	50	20
DY5-26D	60	20
355415	120	20
355416	40	10
355417	30	10
355418	5550	10
355419	80	10
355420	< 5	10
355421	70	30
355422	20	50
355423	< 5	10
355424	140	60
399764	< 5	10
399765	< 5	20
399766	< 5	10
399767	< 5	10
399768	10	10
399769	< 5	40

Area E

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6329 BERESFORD STREET, BURNABY, B.C. V5E 1B3 / PH: 435-8376 / FAX: 435-9746

** CERTIFICATE OF ANALYSIS **

To: Stetson Resource Management Corporation
13 - 1155 Melville Street
Vancouver, B.C.
V6E 4C4

Number: 89181/89187
Date: June 2, 1989
Proj.:

Attn: Bill Dynes

Type of Analysis: ICP-AES

	Al	Ag	As	B	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Hg
	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm
399754	0.14	11.8	87	5	100	1	5	0.02	1	2	189	12	0.47	ND
399756	0.79	0.1	2124	5	315	2	2	0.31	1	6	41	19	4.69	ND
399757	0.82	0.1	8	5	160	1	2	0.62	1	7	17	29	1.28	ND
399758	0.55	0.6	22	5	41	1	3	0.28	1	5	43	13	1.47	ND
399759	0.16	36.9	254	5	148	1	5	0.02	1	1	148	13	1.11	ND
399760	0.16	60.5	226	5	188	1	3	0.01	1	1	184	12	1.69	ND
399761	0.28	1.9	109	5	95	1	3	0.06	1	2	118	6	0.79	ND
399762	0.25	2.9	137	5	50	1	4	0.03	1	1	122	6	0.80	ND
399763	0.15	6.4	279	5	65	1	4	0.01	1	1	124	6	1.08	ND
Dy5-26A	0.17	4.9	34	5	135	1	2	0.03	1	1	181	14	1.10	ND
Dy5-26C	0.13	1.4	13	5	145	1	2	0.02	1	1	223	7	0.83	ND
Dy5-26D	0.15	0.7	21	5	160	1	2	0.01	1	1	181	5	0.90	ND
[illegible]5	0.16	5.2	68	5	39	1	2	0.02	1	1	191	6	0.67	ND
[illegible]416	0.20	0.2	22	5	29	1	2	0.01	1	1	154	5	1.34	ND
355417	0.28	0.4	19	5	33	1	2	0.03	1	2	118	5	0.67	ND
355418	0.21	16.6	24	5	32	1	2	0.07	1	4	258	12	1.09	ND
355419	0.14	0.5	20	5	31	1	2	0.02	1	1	168	6	0.97	ND
355420	0.47	0.5	16	5	49	1	3	0.23	1	3	35	6	0.54	ND
355421	0.20	0.4	40	5	17	1	2	0.06	1	1	84	4	0.64	ND
355422	0.21	0.7	603	5	34	2	2	0.03	1	2	109	5	2.84	ND
355423	0.07	2.6	10	5	86	1	2	0.18	1	1	333	7	0.55	ND
355424	0.16	1.3	45	5	41	1	2	0.02	1	1	158	4	0.43	ND
399764	1.29	0.1	2	5	143	2	2	0.87	1	6	18	79	1.57	ND
399765	0.58	0.1	75	5	71	2	2	0.23	1	2	22	9	1.03	ND
399766	0.18	0.1	39	5	86	1	2	0.01	1	1	120	5	0.86	ND
399767	0.18	0.2	30	5	64	1	2	0.02	1	1	170	5	0.71	ND
399768	0.15	1.7	102	5	119	1	2	0.19	1	1	329	8	0.91	ND
399769	0.26	1.3	673	5	627	2	2	1.10	7	19	13	13	19.91	ND

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CDN RESOURCE LABORATORIES LTD.

6329 BERESFORD STREET, BURNABY, B.C. V5E 1B3 / PH: 435-8376 / FAX: 435-9746

** CERTIFICATE OF ANALYSIS **

To: Stetson Resource Management Corp.
13 - 1155 Melville Street
Vancouver, B.C.
V6E 4C4

Number: 89181/89187
Date: June 2, 1989
Proj.:

Attn: Bill Dynes

Type of Analysis: ICP-AES

	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P %	Pb ppm	Sb ppm	Sr ppm	Ti %	V ppm	Zn ppm
399754	78	0.02	23	66	0.03	6	NA	13	8	11	0.01	7	12
399756	21	0.27	233	10	0.06	10	NA	1	8	81	0.11	79	51
399757	32	0.48	437	1	0.02	7	NA	11	2	72	0.08	30	45
399758	98	0.19	926	4	0.02	5	NA	22	2	30	0.03	21	62
399759	94	0.03	35	288	0.02	3	NA	33	5	21	0.01	7	17
399760	39	0.01	28	266	0.01	4	NA	38	13	28	0.01	10	10
399761	105	0.08	65	32	0.01	3	NA	20	3	33	0.01	12	14
399762	91	0.06	37	63	0.01	3	NA	18	3	19	0.01	11	17
399763	95	0.02	24	75	0.03	2	NA	7	2	25	0.01	5	12
Dy5-26A	54	0.02	47	13	0.01	4	NA	6	2	19	0.01	12	74
Dy5-26C	73	0.01	27	42	0.01	4	NA	11	6	11	0.01	18	7
Dy5-26D	72	0.01	24	18	0.01	3	NA	12	2	31	0.01	7	15
[illegible]15	60	0.01	45	16	0.01	3	NA	5	2	16	0.01	6	14
[illegible]416	78	0.01	18	22	0.01	2	NA	5	2	8	0.01	9	17
355417	91	0.12	165	10	0.01	3	NA	19	2	11	0.01	9	58
355418	14	0.15	135	90	0.01	5	NA	5	2	13	0.01	22	21
355419	72	0.01	37	20	0.01	3	NA	12	2	10	0.01	8	16
355420	125	0.12	111	4	0.01	1	NA	23	2	35	0.01	10	22
355421	85	0.02	19	7	0.01	2	NA	9	2	16	0.01	8	28
355422	100	0.02	84	16	0.01	3	NA	12	17	15	0.01	31	18
355423	3	0.01	216	21	0.01	5	NA	1	2	12	0.01	8	12
355424	74	0.02	22	12	0.01	2	NA	7	2	16	0.01	4	5
399764	38	0.53	218	2	0.01	10	NA	13	2	138	0.03	30	34
399765	96	0.15	61	5	0.01	2	NA	20	2	39	0.01	12	33
399766	51	0.02	17	8	0.01	3	NA	12	2	27	0.01	12	7
399767	61	0.02	37	11	0.01	2	NA	7	2	11	0.01	6	9
399768	50	0.02	44	27	0.01	6	NA	8	2	26	0.01	6	18
399769	13	0.13	6159	9	0.01	11	NA	38	2	239	0.01	23	51

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6329 BERESFORD STREET, BURNABY, B.C. V5E 1B3 / PH: 435-8376 / FAX: 435-9746

** GEOCHEMICAL REPORT **

To: Stetson Resource Management Corp.
13 - 1155 Melville Street
Vancouver, B.C.
V6E 4C4

Number: 89196
Date: June 8, 1989
Proj.: Nash

Attn: Bill Dynes

	Au ppb	Hg ppb
Type Huntington Gate	< 5	10
1 KM E. of Huntington Gate	< 5	10
80476	< 5	20
80477	50	20
80478	30	60
80479	< 5	10
80480	< 5	10
80481	680	10
80482	< 5	10
80483	110	250
80484	200	20
80485	200	30
80486	< 5	30
80487	< 5	10
355425	990	60
355426	160	60
355427	30	80
399770	< 5	20
399771	< 5	20
399772	10	50
399773	< 5	30
399774	< 5	10
399775	< 5	30
399776	70	50
399777	60	70
399778	130	40
399779	< 5	20
399780	320	10
399781	10	10
399782	30	10
399783	< 5	10
399784	100	20
399785	150	40

Duncan Sanderson

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6329 BERESFORD STREET, BURNABY, B.C. V5E 1B3 / PH: 435-8376 / FAX: 435-9746

*** CERTIFICATE OF ANALYSIS ***

To: Stetson Resource Management Corporation
13 - 1155 Melville Street
Vancouver, B.C.
V6E 4C4

Number: 89136
Date: June 16, 1989
Proj.: Nasn

Attn: Bill Dynes

Type of Analysis: ICP-AES

	Ag	Al	As	B	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Hg
	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm
1*	0.5	0.22	5	243	80	1	2	0.05	1	4	127	12	1.18	nd
2*	0.1	0.29	7	17	152	1	2	0.11	1	4	141	7	0.97	nd
80476	0.1	0.16	27	13	31	1	2	0.01	1	2	192	4	0.54	nd
80477	1.9	0.12	25	15	81	1	1	0.03	1	2	234	7	0.96	nd
80478	0.5	0.02	8	9	10	1	2	0.03	1	1	249	4	0.34	nd
80479	0.2	0.41	23	15	71	1	2	0.16	1	11	384	11	1.61	nd
80480	0.5	0.49	49	12	62	1	2	0.24	1	12	287	12	1.69	nd
80481	3.8	0.09	10	9	15	1	2	0.02	1	2	268	7	0.41	nd
80482	1.1	0.16	91	12	27	1	6	0.02	1	3	194	4	0.66	nd
80483	2.4	0.11	136	186	53	1	7	0.01	1	2	235	7	1.22	nd
80484	12.4	0.12	52	16	29	1	2	0.01	1	1	166	4	0.42	nd
80485	2.2	0.09	179	110	46	1	14	0.02	1	2	241	9	0.69	nd
80486	0.1	0.31	1045	9	144	2	2	0.42	1	16	13	8	4.44	nd
[illegible]0487	0.4	0.54	166	13	123	1	2	0.22	1	11	80	9	1.41	nd
[illegible]25	18.1	0.21	70	12	667	1	4	0.07	1	5	247	11	1.09	nd
[illegible]5426	5.7	0.14	143	33	570	1	2	0.04	1	4	205	8	1.33	nd
355427	3.8	0.07	15	17	88	1	3	0.02	1	2	342	11	0.44	nd
399770	1.1	0.21	45	10	42	1	7	0.04	1	3	168	4	0.58	nd
399771	0.4	0.19	80	10	26	1	3	0.02	1	3	118	4	0.78	nd
399772	0.2	0.25	61	7	34	1	2	0.07	1	6	125	4	0.76	nd
399773	0.9	0.11	122	30	125	1	2	0.05	1	2	240	7	1.55	nd
399774	0.1	0.14	39	9	51	1	2	0.01	1	2	222	5	0.54	nd
399775	0.1	0.47	49	9	52	1	2	0.17	1	7	20	3	0.95	nd
399776	1.8	0.22	83	9	37	1	7	0.03	1	4	131	5	0.69	nd
399777	0.1	0.17	76	14	41	1	2	0.02	1	2	282	7	0.93	nd
399778	0.3	0.15	29	18	37	1	2	0.02	1	2	97	3	0.53	nd
399779	0.1	0.15	108	36	57	1	2	0.01	1	2	142	4	1.09	nd
399780	2.7	0.13	27	9	19	1	2	0.02	1	2	311	8	0.82	nd
399781	0.4	0.13	30	12	33	1	2	0.05	1	3	244	7	0.69	nd
399782	2.6	0.11	91	45	78	1	2	0.02	1	2	187	7	0.33	nd
399783	0.1	0.16	174	13	22	1	2	0.01	1	1	151	4	0.97	nd
399784	1.1	0.18	181	16	38	1	2	0.09	1	1	207	4	1.31	nd
399785	2.1	0.19	107	11	80	1	2	0.04	1	3	192	8	1.53	nd

1* is sample "Type Huntington Gate"
2* is sample "1km E. of Huntington Gate"

Duncan Sanderson

CDN RESOURCE LABORATORIES LTD.

6329 BERESFORD STREET, BURNABY, B.C. V5E 1B3 / PH: 435-8376 / FAX: 435-9746

*** CERTIFICATE OF ANALYSIS ***

To: Stetson Resource Management Corporation
13 - 1155 Melville Street
Vancouver, B.C.
V6E 4C4

Number: 89136
Date: June 16, 1989
Proj.: Nasn

Attn: Bill Dynes

Type of Analysis: ICP-AES

	La	Mg	Mn	Mo	Na	Ni	Pb	Sb	Sr	Ti	V	W	Zn
	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
1*	34	0.01	22	20	0.01	7	23	2	18	0.01	2	3	63
2*	36	0.09	68	30	0.03	2	26	2	9	0.01	14	3	23
80476	58	0.02	29	14	0.01	3	10	2	6	0.01	8	3	13
80477	37	0.03	51	17	0.01	5	8	2	15	0.02	16	3	12
80478	1	0.01	18	15	0.01	4	1	2	1	0.01	3	3	4
80479	31	0.25	275	21	0.01	13	5	2	19	0.02	32	5	45
80480	35	0.42	212	16	0.01	11	11	3	20	0.02	47	4	35
80481	2	0.03	70	16	0.01	5	1	2	3	0.01	6	5	5
80482	70	0.03	57	15	0.01	4	11	2	6	0.01	16	3	10
80483	69	0.01	20	59	0.01	5	5	3	10	0.01	4	5	4
80484	61	0.01	25	69	0.01	2	2	2	11	0.01	7	1	3
80485	78	0.01	19	610	0.01	4	7	11	11	0.01	7	1	7
80486	79	0.25	659	50	0.01	5	23	2	92	0.01	27	2	45
80487	69	0.18	424	28	0.01	7	15	2	45	0.05	39	2	28
355425	57	0.02	131	18	0.01	5	30	4	59	0.01	25	2	23
355426	42	0.01	138	14	0.01	4	9	2	30	0.01	11	1	36
355427	14	0.01	23	24	0.01	7	17	2	12	0.01	3	1	7
399770	67	0.03	24	25	0.01	3	6	2	9	0.01	7	1	10
399771	81	0.02	36	17	0.01	2	3	2	5	0.01	8	1	10
399772	88	0.03	179	14	0.01	2	14	2	12	0.01	9	1	14
399773	167	0.01	49	18	0.01	3	1	2	18	0.01	5	1	5
399774	60	0.01	57	30	0.01	2	1	2	6	0.01	4	1	7
399775	129	0.11	43	3	0.01	1	12	2	31	0.01	9	1	23
399776	80	0.03	23	16	0.01	3	11	2	8	0.01	8	2	10
399777	71	0.01	37	24	0.01	4	20	3	7	0.01	8	1	4
399778	60	0.02	24	6	0.02	1	5	2	13	0.01	4	1	4
399779	54	0.01	15	38	0.01	2	26	2	28	0.01	8	1	11
399780	18	0.02	46	37	0.01	4	5	3	3	0.01	10	1	6
399781	43	0.01	34	20	0.01	4	14	2	8	0.01	10	1	6
399782	57	0.01	17	39	0.01	2	15	3	30	0.01	6	1	3
399783	28	0.01	18	25	0.01	1	5	2	6	0.01	11	1	12
399784	57	0.02	26	22	0.01	1	13	2	12	0.01	13	1	21
399785	55	0.02	36	28	0.01	3	9	2	10	0.01	15	1	36

1* is sample "Type Huntington Gate"
2* is sample "1km E. of Huntington Gate"

Duncan Sanderson

APPENDIX II

SOIL GEOCHEMICAL RESULTS

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 BROOKSBANK AVE., NORTH VANCOUVER, BRITISH COLUMBIA, CANADA V7J-2C1
PHONE (604) 984-0221

To: STETSON RESOURCE MANAGEMENT CORP.
13 - 1155 MELVILLE ST.
VANCOUVER, BC
V6E 4C4
Project : NASH
Comments:

Date : 4-DEC-89
Invoice # : I-8931014
P.O. # :

CERTIFICATE OF ANALYSIS A8931014

SAMPLE DESCRIPTION	PREP CODE		Au ppb FA+AA	Al %	Ag ppm	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
L0+00 0+00	201	238	5	2.22	1.0	15	120	0.5	< 2	0.26	< 0.5	4	10	17	1.49	< 10	< 1	0.05	10	0.15	160
L0+00 0+25W	201	238	5	1.93	4.2	20	110	< 0.5	< 2	0.21	< 0.5	4	5	9	1.42	< 10	< 1	0.06	20	0.13	175
L0+00 0+75W	201	238	< 5	0.31	0.4	< 5	30	< 0.5	< 2	0.04	< 0.5	2	5	4	1.05	< 10	< 1	0.02	< 10	0.03	80
L0+00 1+25W	201	238	< 5	2.38	0.8	20	170	< 0.5	2	0.07	< 0.5	6	16	8	1.98	< 10	1	0.06	10	0.17	155
L0+00 2+25W	201	238	< 5	2.31	0.8	10	240	< 0.5	< 2	0.15	< 0.5	7	15	13	2.10	< 10	1	0.08	10	0.19	220
L0+00 2+50W	201	238	< 5	2.56	0.6	15	150	< 0.5	< 2	0.07	< 0.5	6	11	9	1.99	< 10	< 1	0.05	10	0.14	125
L0+00 5+00W	201	238	< 5	1.44	0.4	5	150	0.5	< 2	0.15	< 0.5	5	18	7	1.69	< 10	< 1	0.07	20	0.22	140
L0+00 5+25W	201	238	5	1.24	0.6	5	110	< 0.5	< 2	0.11	< 0.5	4	14	6	1.32	< 10	< 1	0.07	20	0.15	185
L0+00 5+50W	201	238	10	1.08	0.6	5	90	1.0	2	0.13	< 0.5	4	15	6	1.18	< 10	< 1	0.06	20	0.13	235
L0+00 5+75W	201	238	5	1.77	1.0	10	140	< 0.5	2	0.24	< 0.5	5	9	7	1.63	< 10	< 1	0.08	20	0.10	305
L0+00 6+00W	201	238	5	2.31	0.6	15	120	< 0.5	< 2	0.07	< 0.5	5	10	6	1.61	< 10	< 1	0.04	10	0.08	260
L0+00 6+25W	201	238	< 5	2.32	0.8	5	210	< 0.5	2	0.14	< 0.5	6	14	9	1.80	< 10	< 1	0.07	10	0.16	220
L0+00 6+50W	201	238	15	2.12	0.6	10	220	< 0.5	< 2	0.14	< 0.5	6	14	6	1.95	< 10	< 1	0.09	10	0.15	215
L0+00 6+75W	201	238	20	2.01	0.6	10	230	< 0.5	2	0.15	< 0.5	6	19	8	2.17	< 10	< 1	0.08	10	0.19	160
L0+00 7+50W	201	238	20	1.90	1.0	15	140	< 0.5	2	0.10	< 0.5	5	13	6	1.85	< 10	< 1	0.08	20	0.17	140
L0+00 7+75W	201	238	65	1.37	3.6	20	60	0.5	2	0.04	< 0.5	3	7	4	1.17	< 10	< 1	0.05	40	0.07	75
L0+00 8+00W	201	238	10	1.96	1.8	40	90	< 0.5	2	0.07	< 0.5	4	7	6	1.61	< 10	< 1	0.05	10	0.12	90
L0+00 8+25W	201	238	5	0.58	1.2	10	60	< 0.5	2	0.05	< 0.5	1	4	2	0.62	< 10	< 1	0.15	30	0.09	65
L0+00 8+50W	201	238	15	2.50	2.0	30	200	< 0.5	4	0.13	< 0.5	7	21	8	2.17	< 10	< 1	0.10	20	0.32	180
L0+00 8+75W	201	238	45	2.74	2.2	20	120	< 0.5	< 2	0.10	< 0.5	6	14	8	1.95	< 10	< 1	0.05	10	0.17	255
L0+00 9+00W	201	238	< 5	2.82	2.0	10	130	< 0.5	< 2	0.06	< 0.5	7	22	10	2.18	< 10	< 1	0.06	10	0.22	125
L0+00 9+25W	201	238	20	2.77	2.4	20	80	< 0.5	< 2	0.06	< 0.5	7	25	7	2.26	< 10	< 1	0.06	10	0.21	105
L1+00N 0+00	201	238	10	2.81	3.2	20	140	< 0.5	< 2	0.17	< 0.5	5	11	6	1.62	< 10	< 1	0.07	10	0.13	470
L1+00N 0+25W	201	238	10	1.73	1.2	20	170	< 0.5	< 2	0.14	< 0.5	5	17	7	1.73	< 10	< 1	0.07	20	0.16	120
L1+00N 1+25W	201	238	< 5	2.33	1.0	5	160	< 0.5	< 2	0.19	< 0.5	6	15	7	2.06	< 10	< 1	0.07	10	0.17	210
L1+00N 1+50W	201	238	5	2.10	0.8	10	130	< 0.5	< 2	0.11	< 0.5	5	19	6	1.93	< 10	< 1	0.08	10	0.19	130
L1+00N 1+75W	201	238	15	3.33	1.4	20	90	< 0.5	< 2	0.05	< 0.5	5	13	8	2.00	< 10	< 1	0.05	< 10	0.09	65
L1+00N 2+00W	201	238	5	2.72	0.6	< 5	170	< 0.5	< 2	0.09	< 0.5	7	15	8	1.96	< 10	< 1	0.06	10	0.13	90
L1+00N 5+00W	201	238	10	0.87	0.8	5	50	< 0.5	< 2	0.28	< 0.5	1	5	3	1.10	< 10	< 1	0.23	120	0.18	115
L1+00N 5+25W	201	238	10	2.38	2.0	10	80	< 0.5	< 2	0.05	< 0.5	6	13	5	1.80	< 10	< 1	0.05	< 10	0.09	135
L1+00N 5+50W	201	238	15	2.89	1.6	15	90	0.5	< 2	0.04	< 0.5	5	8	4	1.47	< 10	< 1	0.03	10	0.06	135
L1+00N 5+75W	201	238	175	1.66	2.0	10	110	< 0.5	< 2	0.10	< 0.5	3	8	4	1.46	< 10	< 1	0.05	10	0.08	295
L1+00N 6+50W	201	238	25	1.60	0.8	5	120	0.5	< 2	0.11	< 0.5	3	10	7	1.18	< 10	< 1	0.05	10	0.15	80
L1+00N 6+75W	201	238	10	2.56	0.4	10	110	< 0.5	< 2	0.07	< 0.5	5	13	6	1.90	< 10	< 1	0.07	10	0.12	120
L1+00N 7+00W	201	238	15	1.53	1.4	15	120	0.5	< 2	0.14	< 0.5	9	14	6	1.63	< 10	< 1	0.06	20	0.15	345
L1+00N 7+25W	201	238	10	1.86	0.6	5	140	< 0.5	< 2	0.16	< 0.5	4	13	6	1.66	< 10	< 1	0.10	30	0.17	215
L1+00N 7+50W	201	238	5	2.33	0.6	5	230	< 0.5	< 2	0.14	< 0.5	6	18	7	1.86	< 10	< 1	0.11	10	0.19	150
L1+00N 7+75W	201	238	< 5	2.74	0.4	10	140	< 0.5	< 2	0.09	< 0.5	6	16	7	1.98	< 10	< 1	0.06	10	0.17	160
L1+00N 8+00W	201	238	20	1.18	0.6	10	130	< 0.5	< 2	0.23	< 0.5	4	16	6	1.77	< 10	< 1	0.10	30	0.19	190
L1+00N 8+25W	201	238	10	2.71	0.6	10	170	< 0.5	< 2	0.09	< 0.5	7	16	8	1.70	< 10	< 1	0.06	10	0.18	320

CERTIFICATION : B. Cargill

Chemex Labs Ltd.
Analytical Chemists • Geochemists • Registered Assayers
212 BROOKSBANK AVE., NORTH VANCOUVER, BRITISH COLUMBIA, CANADA V7J-2C1
PHONE (604) 984-0221

To: STETSON RESOURCE MANAGEMENT CORP.
13 - 1155 MELVILLE ST.
VANCOUVER, BC
V6E 4C4
Project : NASH
Comments :

Date : 4-DEC-89
Invoice # : I-8931014
P.O. # :

CERTIFICATE OF ANALYSIS A8931014

SAMPLE DESCRIPTION	PREP CODE	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
L0+00 0+00	201 238	1	0.04	12	2460	12	< 5	1	36	0.08	< 10	< 10	36	< 10	164
L0+00 0+25W	201 238	< 1	0.04	8	1220	12	< 5	1	46	0.07	< 10	< 10	23	< 10	106
L0+00 0+75W	201 238	< 1	0.03	3	140	4	< 5	< 1	5	0.07	< 10	< 10	30	< 10	36
L0+00 1+25W	201 238	1	0.02	13	1140	12	5	2	14	0.13	< 10	< 10	47	< 10	106
L0+00 2+25W	201 238	1	0.02	14	1080	8	5	2	21	0.15	< 10	< 10	61	< 10	56
L0+00 2+50W	201 238	1	0.02	11	1450	8	5	2	14	0.13	< 10	< 10	48	< 10	60
L0+00 5+00W	201 238	< 1	0.02	10	490	8	5	2	31	0.11	10	< 10	47	< 10	60
L0+00 5+25W	201 238	< 1	0.02	6	460	8	< 5	1	27	0.08	10	< 10	31	< 10	52
L0+00 5+50W	201 238	1	0.03	6	350	10	< 5	1	24	0.09	< 10	< 10	32	< 10	40
L0+00 5+75W	201 238	2	0.03	5	1330	10	< 5	2	43	0.07	< 10	< 10	36	< 10	70
L0+00 6+00W	201 238	< 1	0.04	8	1260	8	< 5	1	12	0.10	< 10	< 10	32	< 10	64
L0+00 6+25W	201 238	< 1	0.04	13	930	6	< 5	3	25	0.14	< 10	< 10	45	< 10	70
L0+00 6+50W	201 238	1	0.03	10	890	6	< 5	2	20	0.15	< 10	< 10	59	< 10	52
L0+00 6+75W	201 238	1	0.02	11	440	8	5	2	31	0.17	< 10	< 10	67	< 10	52
L0+00 7+50W	201 238	1	0.02	9	930	8	5	2	21	0.10	< 10	< 10	45	< 10	76
L0+00 7+75W	201 238	4	0.02	3	690	10	< 5	1	9	0.04	< 10	< 10	25	< 10	72
L0+00 8+00W	201 238	4	0.02	6	720	8	< 5	1	18	0.07	< 10	< 10	32	< 10	94
L0+00 8+25W	201 238	< 1	0.01	2	180	6	< 5	< 1	40	0.02	< 10	< 10	10	< 10	26
L0+00 8+50W	201 238	1	0.02	16	740	6	5	3	29	0.12	< 10	< 10	52	< 10	102
L0+00 8+75W	201 238	1	0.03	11	860	8	< 5	2	16	0.12	< 10	< 10	41	< 10	84
L0+00 9+00W	201 238	2	0.03	15	500	10	< 5	2	13	0.12	< 10	< 10	45	< 10	70
L0+00 9+25W	201 238	1	0.02	12	400	14	< 5	2	18	0.12	10	10	47	< 10	76
L1+00N 0+00	201 238	1	0.04	12	1920	14	5	2	39	0.10	< 10	< 10	28	< 10	90
L1+00N 0+25W	201 238	1	0.02	11	880	10	< 5	2	27	0.10	< 10	< 10	41	< 10	56
L1+00N 1+25W	201 238	1	0.02	14	1450	10	< 5	2	27	0.13	< 10	< 10	46	< 10	66
L1+00N 1+50W	201 238	< 1	0.02	11	900	8	< 5	2	15	0.12	< 10	< 10	47	< 10	50
L1+00N 1+75W	201 238	1	0.04	10	2030	10	< 5	2	10	0.11	< 10	< 10	35	< 10	40
L1+00N 2+00W	201 238	1	0.03	10	1040	8	< 5	2	20	0.12	< 10	< 10	42	< 10	38
L1+00N 5+00W	201 238	< 1	0.01	2	190	24	< 5	1	60	< 0.01	< 10	< 10	10	< 10	22
L1+00N 5+25W	201 238	1	0.03	9	1810	10	5	1	7	0.10	< 10	< 10	30	< 10	94
L1+00N 5+50W	201 238	1	0.03	8	1140	12	5	1	6	0.08	< 10	< 10	22	< 10	50
L1+00N 5+75W	201 238	1	0.02	5	980	16	< 5	1	14	0.06	< 10	< 10	28	< 10	66
L1+00N 6+50W	201 238	< 1	0.04	5	170	8	< 5	1	26	0.07	< 10	< 10	24	< 10	30
L1+00N 6+75W	201 238	1	0.03	11	1370	6	< 5	2	12	0.10	< 10	< 10	38	< 10	54
L1+00N 7+00W	201 238	1	0.03	7	510	16	5	1	26	0.09	< 10	< 10	39	< 10	70
L1+00N 7+25W	201 238	< 1	0.03	8	620	8	< 5	2	31	0.08	< 10	< 10	36	< 10	56
L1+00N 7+50W	201 238	< 1	0.03	12	530	6	5	2	26	0.12	< 10	< 10	43	< 10	58
L1+00N 7+75W	201 238	1	0.03	14	950	8	< 5	2	17	0.12	< 10	< 10	44	< 10	72
L1+00N 8+00W	201 238	< 1	0.02	6	620	6	5	3	33	0.11	< 10	< 10	54	< 10	42
L1+00N 8+25W	201 238	< 1	0.03	12	920	8	< 5	2	13	0.09	< 10	< 10	32	< 10	110

CERTIFICATION : B. Cargli

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
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SAMPLE DESCRIPTION	PREP CODE	Au ppb FA+AA	Al %	Ag ppm	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
L1+00N 8+50W	201 238	10	2.04	0.4	15	100	< 0.5	2	0.08	< 0.5	7	12	4	1.79	< 10	< 1	0.05	10	0.13	175
L1+00N 8+75W	201 238	5	1.95	0.4	5	140	< 0.5	< 2	0.12	< 0.5	5	18	4	1.62	< 10	< 1	0.07	10	0.15	120
L1+00N 9+25W	201 238	< 5	2.12	0.4	10	100	< 0.5	2	0.11	< 0.5	7	16	6	1.86	< 10	< 1	0.10	10	0.20	130
L1+00N 9+50W	201 238	20	2.59	0.6	15	100	< 0.5	< 2	0.08	< 0.5	8	20	7	2.15	< 10	< 1	0.11	10	0.26	125
L2+00N 5+00W	201 238	25	1.33	0.8	20	140	0.5	< 2	0.17	< 0.5	5	13	7	1.63	< 10	< 1	0.10	30	0.20	160
L2+00N 5+25W	201 238	10	1.38	0.8	10	150	0.5	2	0.29	< 0.5	5	14	7	1.40	< 10	< 1	0.13	40	0.20	395
L2+00N 5+50W	201 238	20	2.97	1.2	25	190	1.0	< 2	0.10	< 0.5	9	15	8	2.00	< 10	< 1	0.07	10	0.16	325
L2+00N 5+75W	201 238	20	2.19	1.8	20	120	0.5	< 2	0.07	< 0.5	7	12	5	1.65	< 10	< 1	0.06	10	0.11	300
L2+00N 6+00W	201 238	20	2.30	2.0	10	220	0.5	< 2	0.13	< 0.5	6	21	6	2.02	< 10	< 1	0.08	20	0.26	260
L2+00N 6+25W	201 238	65	1.25	0.6	25	130	< 0.5	< 2	0.21	< 0.5	4	7	3	1.29	< 10	< 1	0.10	40	0.11	240
L2+00N 6+50W	201 238	15	2.67	0.8	10	270	0.5	< 2	0.26	< 0.5	9	21	7	2.18	< 10	< 1	0.15	20	0.31	240
L2+00N 7+00W	201 238	25	2.01	2.8	15	100	< 0.5	< 2	0.05	< 0.5	3	14	4	1.91	< 10	< 1	0.05	10	0.13	85
L2+00N 7+25W	201 238	25	2.57	6.0	20	90	0.5	2	0.07	< 0.5	7	11	6	1.94	< 10	< 1	0.05	< 10	0.13	180
L2+00N 7+75W	201 238	45	2.53	3.4	30	120	0.5	2	0.21	< 0.5	7	13	5	2.00	< 10	< 1	0.08	10	0.15	365
L2+00N 8+00W	201 238	80	2.88	7.4	65	130	0.5	< 2	0.06	< 0.5	6	11	8	1.82	< 10	< 1	0.06	10	0.15	135
L2+00N 8+25W	201 238	15	3.38	1.6	25	140	0.5	< 2	0.09	< 0.5	9	18	8	2.27	< 10	< 1	0.05	10	0.22	190
L2+00N 8+50W	201 238	10	2.76	2.2	5	110	0.5	< 2	0.07	< 0.5	6	15	7	2.07	< 10	< 1	0.04	10	0.17	195
L2+00N 8+75W	201 238	5	3.01	0.8	5	240	0.5	2	0.10	< 0.5	8	20	8	2.30	< 10	< 1	0.08	10	0.26	180
L2+00N 9+00W	201 238	15	2.81	5.0	20	80	0.5	< 2	0.06	< 0.5	6	13	7	2.13	< 10	< 1	0.07	10	0.17	120
L2+00N 9+25W	201 238	10	3.13	1.6	15	140	0.5	2	0.06	< 0.5	6	17	8	2.18	< 10	< 1	0.06	10	0.24	130
L3+00N 5+00W	201 238	45	1.26	0.6	20	160	< 0.5	< 2	0.24	< 0.5	6	13	8	1.72	< 10	< 1	0.11	40	0.22	245
L3+00N 5+25W	201 238	< 5	1.70	0.8	10	150	< 0.5	< 2	0.17	< 0.5	5	13	6	1.63	< 10	< 1	0.08	20	0.14	250
L3+00N 5+50W	201 238	10	3.35	1.4	30	140	1.0	2	0.11	< 0.5	8	18	9	2.40	< 10	< 1	0.06	20	0.16	135
L3+00N 5+75W	201 238	20	1.90	0.8	10	200	< 0.5	< 2	0.15	< 0.5	6	16	7	1.80	< 10	< 1	0.09	20	0.19	140
L3+00N 6+00W	201 238	10	2.44	0.4	15	70	< 0.5	< 2	0.07	< 0.5	6	13	5	2.11	< 10	< 1	0.08	10	0.09	105
L3+00N 6+25W	201 238	10	2.59	0.8	25	140	0.5	< 2	0.11	< 0.5	6	15	7	1.87	< 10	< 1	0.06	20	0.14	115
L3+00N 6+50W	201 238	10	3.72	1.2	20	120	0.5	< 2	0.09	< 0.5	6	15	9	2.18	< 10	< 1	0.10	10	0.14	80
L3+00N 6+75W	201 238	< 5	2.59	0.6	10	260	0.5	< 2	0.16	< 0.5	8	15	8	1.93	< 10	< 1	0.10	20	0.18	180
L3+00N 7+00W	201 238	5	3.89	0.4	5	100	0.5	< 2	0.07	< 0.5	9	16	9	2.26	< 10	< 1	0.06	< 10	0.14	165
L3+00N 7+25W	201 238	5	3.43	0.8	15	120	0.5	< 2	0.13	< 0.5	9	17	9	2.09	< 10	< 1	0.07	10	0.18	150
L3+00N 7+50W	201 238	15	2.18	1.0	10	160	< 0.5	< 2	0.14	< 0.5	7	16	7	1.95	< 10	< 1	0.09	10	0.19	155
L3+00N 7+75W	201 238	25	3.69	1.0	15	170	0.5	< 2	0.17	< 0.5	10	20	7	2.49	< 10	< 1	0.09	10	0.27	140
L3+00N 8+00W	201 238	10	2.30	1.2	10	190	0.5	< 2	0.14	< 0.5	8	16	7	2.14	< 10	< 1	0.08	10	0.18	170
L3+00N 8+25W	201 238	5	2.24	2.2	10	120	< 0.5	< 2	0.09	< 0.5	6	18	7	2.22	< 10	< 1	0.05	10	0.17	135
L3+00N 8+50W	201 238	10	3.05	2.4	20	110	0.5	< 2	0.07	< 0.5	6	22	7	2.65	< 10	< 1	0.05	10	0.20	100
L3+00N 8+75W	201 238	5	1.51	0.4	10	90	< 0.5	< 2	0.08	< 0.5	4	15	4	1.59	< 10	< 1	0.05	10	0.12	90
L3+00N 9+00W	201 238	5	2.92	0.6	5	160	0.5	< 2	0.10	< 0.5	8	22	7	2.36	< 10	< 1	0.07	20	0.21	130
L3+00N 9+25W	201 238	10	1.88	0.4	10	80	< 0.5	2	0.05	< 0.5	3	18	7	2.15	< 10	< 1	0.05	10	0.14	90
L3+00N 9+50W	201 238	15	2.70	0.2	25	130	0.5	< 2	0.07	< 0.5	7	18	5	2.16	< 10	< 1	0.06	20	0.23	115
L1+00S 0+00	201 238	5	2.23	0.4	5	100	< 0.5	< 2	0.07	< 0.5	5	7	2	1.43	< 10	< 1	0.06	20	0.07	200

CERTIFICATION : B. Cargill

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 BROOKSBANK AVE., NORTH VANCOUVER,
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PHONE (604) 984-0221

To: STETSON RESOURCE MANAGEMENT CORP.
13 - 1155 MELVILLE ST.
VANCOUVER, BC
V6E 4C4
Project : NASH
Comments :

Date : 4-DEC-89
Invoice # : I-8931014
P.O. # :

CERTIFICATE OF ANALYSIS A8931014

SAMPLE DESCRIPTION	PREP CODE	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
L1+00N 8+50W	201 238	< 1	0.03	7	540	10	< 5	1	14	0.10	< 10	< 10	43	< 10	56
L1+00N 8+75W	201 238	< 1	0.02	9	200	4	< 5	1	24	0.12	< 10	< 10	39	< 10	38
L1+00N 9+25W	201 238	< 1	0.03	12	1000	4	< 5	2	20	0.10	< 10	< 10	47	< 10	100
L1+00N 9+50W	201 238	< 1	0.03	14	890	6	< 5	2	19	0.11	< 10	< 10	51	< 10	96
L2+00N 5+00W	201 238	< 1	0.02	6	340	4	< 5	2	53	0.11	< 10	< 10	46	< 10	66
L2+00N 5+25W	201 238	< 1	0.02	9	780	10	< 5	2	75	0.06	< 10	< 10	35	< 10	56
L2+00N 5+50W	201 238	< 1	0.03	12	1420	6	< 5	2	26	0.09	< 10	< 10	43	< 10	102
L2+00N 5+75W	201 238	1	0.02	10	960	8	< 5	1	16	0.07	< 10	< 10	34	< 10	120
L2+00N 6+00W	201 238	1	0.02	12	910	10	< 5	2	39	0.10	< 10	< 10	46	< 10	128
L2+00N 6+25W	201 238	1	0.01	4	680	16	< 5	1	29	0.05	< 10	< 10	31	< 10	62
L2+00N 6+50W	201 238	< 1	0.02	15	1570	6	< 5	2	45	0.10	< 10	< 10	50	< 10	132
L2+00N 7+00W	201 238	1	0.03	8	800	10	< 5	1	12	0.09	< 10	< 10	36	< 10	78
L2+00N 7+25W	201 238	< 1	0.03	9	920	10	< 5	1	12	0.09	< 10	< 10	39	< 10	102
L2+00N 7+75W	201 238	< 1	0.04	10	2200	8	< 5	1	26	0.10	< 10	< 10	43	< 10	96
L2+00N 8+00W	201 238	1	0.05	7	630	4	< 5	1	13	0.08	< 10	< 10	35	< 10	102
L2+00N 8+25W	201 238	< 1	0.03	13	850	12	< 5	2	18	0.12	< 10	< 10	50	< 10	80
L2+00N 8+50W	201 238	1	0.03	10	770	2	< 5	2	15	0.10	< 10	< 10	47	< 10	66
L2+00N 8+75W	201 238	< 1	0.03	14	610	10	< 5	2	25	0.12	< 10	< 10	58	< 10	60
L2+00N 9+00W	201 238	1	0.03	10	880	16	< 5	2	11	0.09	< 10	< 10	44	< 10	82
L2+00N 9+25W	201 238	< 1	0.02	13	470	16	< 5	2	14	0.09	< 10	< 10	47	< 10	78
L3+00N 5+00W	201 238	5	0.02	7	710	4	< 5	3	56	0.10	< 10	< 10	50	< 10	46
L3+00N 5+25W	201 238	< 1	0.02	8	1070	10	< 5	2	37	0.09	< 10	< 10	42	< 10	52
L3+00N 5+50W	201 238	< 1	0.03	13	2070	10	< 5	3	25	0.11	< 10	< 10	52	< 10	56
L3+00N 5+75W	201 238	1	0.02	8	490	12	< 5	2	38	0.10	< 10	< 10	46	< 10	50
L3+00N 6+00W	201 238	< 1	0.04	8	1060	4	< 5	1	12	0.10	< 10	< 10	47	< 10	46
L3+00N 6+25W	201 238	< 1	0.04	8	1110	4	< 5	2	27	0.09	< 10	< 10	39	< 10	58
L3+00N 6+50W	201 238	1	0.04	11	2010	10	< 5	2	23	0.09	< 10	< 10	41	< 10	62
L3+00N 6+75W	201 238	< 1	0.02	13	1250	6	< 5	2	37	0.12	< 10	< 10	50	< 10	42
L3+00N 7+00W	201 238	< 1	0.05	11	2210	12	< 5	2	14	0.10	< 10	< 10	40	< 10	54
L3+00N 7+25W	201 238	< 1	0.03	15	1540	< 2	< 5	2	23	0.08	< 10	< 10	41	< 10	58
L3+00N 7+50W	201 238	< 1	0.03	10	1100	6	< 5	2	34	0.09	< 10	< 10	47	< 10	54
L3+00N 7+75W	201 238	< 1	0.03	15	1540	12	< 5	2	38	0.10	< 10	< 10	51	< 10	72
L3+00N 8+00W	201 238	< 1	0.02	10	1510	8	< 5	2	33	0.11	< 10	< 10	54	< 10	54
L3+00N 8+25W	201 238	< 1	0.02	8	1530	8	< 5	2	28	0.08	< 10	< 10	48	< 10	52
L3+00N 8+50W	201 238	< 1	0.02	10	3040	14	< 5	2	21	0.08	< 10	< 10	49	< 10	48
L3+00N 8+75W	201 238	< 1	0.02	8	840	4	< 5	1	19	0.06	< 10	< 10	35	< 10	34
L3+00N 9+00W	201 238	< 1	0.02	12	890	10	< 5	2	26	0.10	< 10	< 10	57	< 10	44
L3+00N 9+25W	201 238	< 1	0.02	4	820	12	< 5	1	15	0.07	< 10	< 10	46	< 10	42
L3+00N 9+50W	201 238	< 1	0.02	12	970	8	< 5	2	21	0.07	< 10	< 10	41	< 10	44
L1+00S 0+00	201 238	< 1	0.04	5	2190	10	< 5	1	12	0.08	< 10	< 10	25	< 10	78

CERTIFICATION : B. Cargill

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
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PHONE (604) 984-0221

To: STETSON RESOURCE MANAGEMENT CORP.

13 - 1155 MELVILLE ST.
VANCOUVER, BC
V6E 4C4
Project : NASH
Comments:

Date : 4-DEC-89
Invoice # : I-8931014
P.O. # :

CERTIFICATE OF ANALYSIS A8931014

SAMPLE DESCRIPTION	PREP CODE	Au ppb FA+AA	Al %	Ag ppm	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
L1+00S 0+25W	201 238	< 5	2.09	0.6	5	70	< 0.5	< 2	0.06	< 0.5	4	8	3	1.70	< 10	< 1	0.04	10	0.07	110
L1+00S 0+50W	201 238	< 5	2.39	0.8	20	210	< 0.5	< 2	0.41	< 0.5	6	12	5	1.86	< 10	< 1	0.14	10	0.14	540
L1+00S 0+75W	201 238	< 5	1.41	0.2	15	100	< 0.5	< 2	0.08	< 0.5	4	10	5	1.62	< 10	< 1	0.06	10	0.11	115
L1+00S 1+00W	201 238	< 5	3.52	0.6	20	190	< 0.5	< 2	0.14	< 0.5	8	15	11	1.99	< 10	< 1	0.06	10	0.22	125
L1+00S 1+25W	201 238	< 5	3.45	0.6	15	170	0.5	< 2	0.09	< 0.5	8	15	9	2.05	< 10	< 1	0.07	10	0.18	135
L1+00S 1+50W	201 238	< 5	2.53	0.8	< 5	180	< 0.5	< 2	0.14	< 0.5	10	26	10	2.23	< 10	< 1	0.08	10	0.32	160
L1+00S 1+75W	201 238	20	1.74	0.6	10	100	< 0.5	< 2	0.07	< 0.5	4	10	5	1.66	< 10	< 1	0.06	20	0.10	100
L1+00S 2+00W	201 238	5	2.11	0.6	15	130	< 0.5	< 2	0.12	< 0.5	6	13	8	1.97	< 10	< 1	0.08	10	0.13	125
L1+00S 2+25W	201 238	< 5	2.57	0.6	10	80	< 0.5	< 2	0.05	< 0.5	4	9	4	1.74	< 10	< 1	0.04	10	0.08	70
L1+00S 2+50W	201 238	10	1.45	1.2	20	90	0.5	< 2	0.19	< 0.5	6	14	14	1.56	< 10	< 1	0.06	40	0.21	275
L1+00S 2+75W	201 238	10	3.35	2.4	5	190	3.0	< 2	0.38	< 0.5	15	28	32	2.61	< 10	< 1	0.10	100	0.38	1175
L1+00S 3+00W	201 238	15	3.21	2.0	30	150	2.0	< 2	0.39	< 0.5	13	28	26	2.56	< 10	< 1	0.10	80	0.36	685
L1+00S 3+25W	201 238	< 5	1.37	0.4	5	80	< 0.5	< 2	0.10	< 0.5	3	8	5	1.17	< 10	< 1	0.06	10	0.14	95
L1+00S 3+50W	201 238	< 5	1.41	0.4	5	110	< 0.5	< 2	0.16	< 0.5	4	13	6	1.65	< 10	< 1	0.08	20	0.18	220
L1+00S 3+75W	201 238	< 5	1.21	0.4	5	90	< 0.5	< 2	0.12	< 0.5	3	8	5	1.14	< 10	< 1	0.06	10	0.14	110
L1+00S 4+00W	201 238	< 5	1.46	0.6	5	230	< 0.5	< 2	0.16	< 0.5	3	12	5	1.43	< 10	< 1	0.10	20	0.21	100
L1+00S 4+25W	201 238	< 5	1.39	0.4	5	120	< 0.5	< 2	0.14	< 0.5	5	13	5	1.51	< 10	< 1	0.07	20	0.20	160
L1+00S 4+50W	201 238	< 5	1.46	0.4	5	130	< 0.5	< 2	0.13	< 0.5	6	11	6	1.47	< 10	< 1	0.07	20	0.17	855
L1+00S 4+75W	201 238	< 5	1.66	0.4	10	150	1.0	< 2	0.20	< 0.5	11	12	7	1.63	< 10	< 1	0.06	30	0.14	1185
L1+00S 5+00W	201 238	< 5	0.83	0.4	10	50	< 0.5	< 2	0.09	< 0.5	1	5	3	0.70	< 10	< 1	0.04	10	0.07	185
L1+00S 5+25W	201 238	< 5	3.65	0.6	15	90	0.5	< 2	0.11	< 0.5	6	10	6	1.81	< 10	< 1	0.06	10	0.08	470
L1+00S 5+50W	201 238	< 5	1.21	0.4	< 5	130	< 0.5	< 2	0.23	< 0.5	4	10	4	1.21	< 10	< 1	0.11	30	0.18	200
L1+00S 5+75W	201 238	35	2.05	0.8	15	110	< 0.5	< 2	0.09	< 0.5	5	14	5	1.71	< 10	< 1	0.09	20	0.11	175
L1+00S 6+25W	201 238	25	1.76	1.0	5	90	< 0.5	< 2	0.11	< 0.5	5	11	6	1.73	< 10	< 1	0.08	20	0.11	215
L1+00S 6+50W	201 238	35	1.35	0.6	10	120	0.5	< 2	0.17	< 0.5	6	18	6	1.71	< 10	< 1	0.07	20	0.23	235
L1+00S 6+75W	201 238	< 5	1.93	0.8	10	130	< 0.5	< 2	0.10	< 0.5	5	12	5	1.68	< 10	< 1	0.06	10	0.13	290
L1+00S 7+25W	201 238	35	1.38	0.6	5	150	< 0.5	< 2	0.15	< 0.5	4	14	5	1.74	< 10	< 1	0.08	40	0.15	140
L1+00S 7+50W	201 238	80	1.22	0.6	20	100	< 0.5	< 2	0.28	< 0.5	4	13	6	1.69	< 10	< 1	0.14	60	0.25	155
L1+00S 8+50W	201 238	< 5	1.11	0.6	10	110	< 0.5	< 2	0.12	< 0.5	4	12	4	1.43	< 10	< 1	0.08	20	0.13	165
L1+00S 8+75W	201 238	5	2.05	0.2	10	100	< 0.5	< 2	0.08	< 0.5	5	13	4	1.74	< 10	< 1	0.06	10	0.12	145
L1+00S 9+25W	201 238	< 5	1.96	0.2	5	100	< 0.5	< 2	0.08	< 0.5	6	15	5	1.81	< 10	< 1	0.06	10	0.19	165
L1+00S 9+50W	201 238	10	2.20	1.0	15	140	1.5	< 2	0.29	< 0.5	7	20	12	1.98	< 10	< 1	0.09	50	0.33	435
L1+00S 10+00W	201 238	< 5	2.02	0.6	10	110	< 0.5	< 2	0.10	< 0.5	7	20	8	1.99	< 10	< 1	0.07	10	0.25	305
L1+00S 10+25W	201 238	< 5	2.68	0.6	5	150	< 0.5	< 2	0.19	< 0.5	9	24	9	2.41	< 10	< 1	0.09	10	0.37	665
L1+00S 10+50W	201 238	75	4.14	0.4	20	180	0.5	< 2	0.22	< 0.5	12	36	11	3.22	< 10	< 1	0.07	20	0.48	800
L2+00S 0+00	201 238	< 5	2.71	0.2	< 5	90	< 0.5	< 2	0.06	< 0.5	5	10	4	1.96	< 10	< 1	0.05	20	0.09	90
L2+00S 0+25W	201 238	< 5	1.75	0.4	5	90	< 0.5	< 2	0.10	< 0.5	3	6	4	1.41	< 10	< 1	0.06	10	0.09	140
L2+00S 0+50W	201 238	< 5	0.65	0.2	5	60	< 0.5	< 2	0.07	< 0.5	1	7	2	1.01	< 10	< 1	0.05	40	0.13	100
L2+00S 0+75W	201 238	< 5	2.26	0.8	5	80	< 0.5	< 2	0.07	< 0.5	4	10	4	1.61	< 10	< 1	0.04	10	0.09	150
L2+00S 1+00W	201 238	< 5	1.94	0.4	5	140	< 0.5	< 2	0.17	< 0.5	6	15	7	2.04	< 10	< 1	0.06	10	0.18	285

CERTIFICATION : B. Cargill

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To: STETSON RESOURCE MANAGEMENT CORP.

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CERTIFICATE OF ANALYSIS A8931014

SAMPLE DESCRIPTION	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
L1+00S 0+25W	201	238	< 1	0.04	4	1290	< 2	< 5	1	9	0.09	< 10	< 10	37	< 10	84
L1+00S 0+50W	201	238	1	0.04	15	3310	4	< 5	1	47	0.10	< 10	< 10	34	< 10	266
L1+00S 0+75W	201	238	1	0.02	7	1120	8	< 5	1	13	0.11	< 10	< 10	41	< 10	50
L1+00S 1+00W	201	238	< 1	0.04	15	1230	8	< 5	3	30	0.12	< 10	< 10	39	< 10	56
L1+00S 1+25W	201	238	< 1	0.04	19	1000	4	< 5	2	21	0.13	< 10	< 10	43	< 10	68
L1+00S 1+50W	201	238	< 1	0.02	21	880	4	< 5	3	22	0.13	< 10	< 10	57	< 10	64
L1+00S 1+75W	201	238	< 1	0.02	7	1140	8	< 5	1	14	0.09	< 10	< 10	41	< 10	44
L1+00S 2+00W	201	238	1	0.03	14	1310	6	< 5	3	20	0.14	< 10	< 10	54	< 10	50
L1+00S 2+25W	201	238	< 1	0.02	9	2170	8	< 5	2	8	0.10	< 10	< 10	38	< 10	44
L1+00S 2+50W	201	238	1	0.03	9	290	14	< 5	3	39	0.09	< 10	< 10	39	< 10	36
L1+00S 2+75W	201	238	1	0.02	21	780	18	< 5	6	69	0.06	< 10	< 10	47	< 10	58
L1+00S 3+00W	201	238	< 1	0.03	15	780	18	< 5	6	66	0.06	< 10	< 10	47	< 10	56
L1+00S 3+25W	201	238	< 1	0.04	4	310	6	< 5	1	20	0.07	< 10	< 10	26	< 10	40
L1+00S 3+50W	201	238	< 1	0.02	6	600	< 2	< 5	2	31	0.11	< 10	< 10	49	< 10	48
L1+00S 3+75W	201	238	< 1	0.03	4	210	2	< 5	1	26	0.08	< 10	< 10	26	< 10	30
L1+00S 4+00W	201	238	< 1	0.02	4	340	10	< 5	2	52	0.10	< 10	< 10	33	< 10	36
L1+00S 4+25W	201	238	< 1	0.02	6	310	10	< 5	2	31	0.11	< 10	< 10	42	< 10	40
L1+00S 4+50W	201	238	1	0.03	6	350	8	< 5	1	29	0.10	< 10	< 10	38	< 10	44
L1+00S 4+75W	201	238	< 1	0.03	6	610	14	< 5	2	41	0.08	< 10	< 10	43	< 10	48
L1+00S 5+00W	201	238	< 1	0.04	2	180	4	< 5	< 1	15	0.07	< 10	< 10	17	< 10	32
L1+00S 5+25W	201	238	< 1	0.04	7	2500	8	< 5	3	20	0.09	< 10	< 10	33	< 10	52
L1+00S 5+50W	201	238	< 1	0.02	5	530	14	< 5	1	41	0.08	< 10	< 10	32	< 10	44
L1+00S 5+75W	201	238	< 1	0.02	6	890	12	< 5	2	17	0.09	< 10	< 10	40	< 10	62
L1+00S 6+25W	201	238	1	0.03	6	1130	8	< 5	2	24	0.11	< 10	< 10	44	< 10	56
L1+00S 6+50W	201	238	1	0.02	7	400	8	< 5	2	40	0.14	< 10	< 10	51	< 10	50
L1+00S 6+75W	201	238	1	0.02	9	1430	10	< 5	1	19	0.10	< 10	< 10	42	< 10	98
L1+00S 7+25W	201	238	1	0.02	6	410	12	< 5	2	32	0.11	< 10	< 10	54	< 10	44
L1+00S 7+50W	201	238	1	0.02	4	460	22	< 5	3	54	0.04	< 10	< 10	35	< 10	56
L1+00S 8+50W	201	238	< 1	0.02	6	420	6	< 5	1	23	0.09	< 10	< 10	43	< 10	48
L1+00S 8+75W	201	238	< 1	0.03	10	1150	6	< 5	1	12	0.09	< 10	< 10	36	< 10	62
L1+00S 9+25W	201	238	1	0.02	13	1030	6	< 5	1	16	0.10	< 10	< 10	41	< 10	56
L1+00S 9+50W	201	238	< 1	0.03	14	670	14	< 5	3	59	0.06	< 10	< 10	35	< 10	86
L1+00S 10+00W	201	238	< 1	0.03	14	1770	4	< 5	2	18	0.10	< 10	< 10	43	< 10	78
L1+00S 10+25W	201	238	< 1	0.03	18	1730	6	< 5	2	28	0.11	< 10	< 10	50	< 10	84
L1+00S 10+50W	201	238	< 1	0.02	21	1270	6	< 5	3	36	0.14	< 10	< 10	67	< 10	92
L2+00S 0+00	201	238	< 1	0.04	7	1200	10	< 5	2	14	0.10	< 10	< 10	41	< 10	48
L2+00S 0+25W	201	238	< 1	0.03	6	1220	< 2	< 5	1	14	0.09	< 10	< 10	30	< 10	58
L2+00S 0+50W	201	238	1	0.01	3	120	10	< 5	1	17	0.07	< 10	< 10	24	< 10	32
L2+00S 0+75W	201	238	< 1	0.02	7	1640	6	< 5	1	13	0.09	< 10	< 10	33	< 10	60
L2+00S 1+00W	201	238	< 1	0.02	11	1250	6	< 5	2	30	0.12	< 10	< 10	52	< 10	70

CERTIFICATION : B. Cargill

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STETSON RESOURCE MANAGEMENT CORP.
13 - 1155 MELVILLE ST.
VANCOUVER, BC
V6E 4C4
Project : NASH
Comments :

Date : 4-DEC-89
Invoice # : I-8931014
P.O. # :

CERTIFICATE OF ANALYSIS A8931014

SAMPLE DESCRIPTION	PREP CODE	Au ppb FA+AA	Al %	Ag ppm	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
L2+00S 1+25W	201 238	< 5	2.73	0.6	20	80	< 0.5	< 2	0.11	< 0.5	5	9	5	1.72	< 10	< 1	0.09	< 10	0.14	195
L2+00S 1+50W	201 238	10	1.32	0.6	25	100	< 0.5	< 2	0.07	< 0.5	4	9	4	1.74	< 10	< 1	0.05	30	0.12	175
L2+00S 1+75W	201 238	< 5	1.84	0.4	5	120	< 0.5	< 2	0.12	< 0.5	6	15	5	1.93	< 10	< 1	0.06	10	0.22	295
L2+00S 2+00W	201 238	5	2.35	0.6	15	140	< 0.5	< 2	0.14	< 0.5	6	13	6	2.04	< 10	< 1	0.07	10	0.17	190
L2+00S 2+25W	201 238	< 5	1.88	2.6	5	90	< 0.5	< 2	0.08	< 0.5	5	10	4	1.70	< 10	< 1	0.05	10	0.10	105
L2+00S 2+50W	201 238	< 5	2.84	0.4	5	90	< 0.5	< 2	0.11	< 0.5	5	9	5	1.77	< 10	< 1	0.06	< 10	0.10	210
L2+00S 2+75W	201 238	< 5	2.76	0.2	10	120	< 0.5	< 2	0.07	< 0.5	6	13	6	2.01	< 10	< 1	0.04	10	0.13	130
L2+00S 3+00W	201 238	5	1.63	< 0.2	10	130	< 0.5	2	0.15	< 0.5	6	15	7	1.74	< 10	< 1	0.06	10	0.26	165
L2+00S 3+25W	201 238	5	2.23	0.2	15	140	< 0.5	< 2	0.15	< 0.5	7	12	6	1.85	< 10	< 1	0.05	10	0.16	490
L2+00S 3+50W	201 238	10	4.45	0.4	10	220	0.5	< 2	0.12	< 0.5	9	19	10	2.74	< 10	< 1	0.06	20	0.18	220
L2+00S 3+75W	201 238	95	1.24	0.2	< 5	90	< 0.5	< 2	0.11	< 0.5	3	10	4	1.27	< 10	< 1	0.05	10	0.16	90
L2+00S 4+00W	201 238	< 5	0.96	0.2	5	60	< 0.5	< 2	0.08	< 0.5	2	5	3	0.95	< 10	< 1	0.04	10	0.13	60
L2+00S 5+25W	201 238	< 5	2.01	0.4	5	130	< 0.5	< 2	0.11	< 0.5	5	12	6	1.71	< 10	< 1	0.06	20	0.14	145
L2+00S 5+50W	201 238	95	1.96	1.0	5	80	< 0.5	< 2	0.05	< 0.5	6	9	5	1.64	< 10	< 1	0.08	10	0.10	150
L2+00S 5+75W	201 238	35	2.90	2.4	5	150	< 0.5	< 2	0.07	< 0.5	6	12	7	2.02	< 10	< 1	0.05	20	0.14	200
L2+00S 6+00W	201 238	< 5	3.08	1.6	10	110	< 0.5	< 2	0.05	< 0.5	6	12	8	2.17	< 10	< 1	0.05	10	0.13	160
L2+00S 6+25W	201 238	45	2.45	2.0	10	90	< 0.5	< 2	0.04	< 0.5	5	10	8	2.16	< 10	< 1	0.03	10	0.11	295
L2+00S 6+50W	201 238	5	2.64	1.2	15	120	< 0.5	< 2	0.06	< 0.5	9	14	7	1.96	< 10	< 1	0.05	10	0.13	235
L2+00S 7+25W	201 238	5	0.92	0.2	< 5	50	< 0.5	2	0.05	< 0.5	1	4	2	0.61	< 10	< 1	0.03	10	0.06	35
L2+00S 7+50W	201 238	< 5	2.46	0.6	5	70	< 0.5	< 2	0.05	< 0.5	5	7	4	1.70	< 10	< 1	0.04	20	0.09	75
L2+00S 7+75W	201 238	< 5	3.24	0.6	< 5	110	< 0.5	< 2	0.16	< 0.5	8	28	9	1.96	< 10	< 1	0.08	10	0.40	200
L2+00S 8+00W	201 238	< 5	2.39	< 0.2	< 5	130	< 0.5	< 2	0.30	< 0.5	6	25	8	2.27	< 10	< 1	0.06	10	0.36	140
L2+00S 8+75W	201 238	5	2.00	< 0.2	5	110	< 0.5	< 2	0.10	< 0.5	6	16	6	2.03	< 10	< 1	0.06	10	0.26	135
L2+00S 9+00W	201 238	< 5	1.76	0.4	10	110	< 0.5	< 2	0.10	< 0.5	5	16	9	1.92	< 10	< 1	0.05	20	0.26	115
L2+00S 9+25W	201 238	< 5	3.82	2.2	40	220	2.5	< 2	0.47	< 0.5	11	34	29	2.94	< 10	< 1	0.12	90	0.57	820
L2+00S 9+50W	201 238	< 5	2.09	0.8	< 5	120	1.5	< 2	0.30	< 0.5	6	28	14	2.22	< 10	< 1	0.07	50	0.51	520
L2+00S 9+75W	201 238	< 5	2.21	0.6	< 5	120	0.5	< 2	0.21	< 0.5	10	27	9	2.35	< 10	< 1	0.07	20	0.44	470
L2+00S 10+00W	201 238	< 5	1.92	0.4	15	170	< 0.5	< 2	0.22	< 0.5	11	26	10	2.33	< 10	< 1	0.08	20	0.34	970
L2+00S 10+25W	201 238	< 5	2.63	0.4	< 5	180	< 0.5	< 2	0.27	< 0.5	11	29	9	2.53	< 10	< 1	0.06	20	0.38	850
L2+00S 10+50W	201 238	< 5	2.67	0.2	20	200	< 0.5	< 2	0.28	< 0.5	12	31	10	2.62	< 10	< 1	0.11	20	0.44	1035
L2+00S 10+75W	201 238	5	3.11	< 0.2	10	180	< 0.5	< 2	0.30	< 0.5	11	36	11	3.00	< 10	< 1	0.09	20	0.53	1020
L2+00S 11+00W	201 238	15	3.38	< 0.2	15	120	0.5	< 2	0.15	< 0.5	12	37	12	3.30	< 10	< 1	0.05	20	0.52	715
L2+00S 11+25W	201 238	5	3.80	< 0.2	10	200	0.5	< 2	0.22	< 0.5	15	50	14	3.61	< 10	< 1	0.07	20	0.68	1395
L2+00S 11+50W	201 238	10	3.94	< 0.2	< 5	200	0.5	< 2	0.26	< 0.5	15	48	14	3.52	< 10	< 1	0.08	20	0.67	1280
L2+00S 11+75W	201 238	< 5	3.78	< 0.2	25	140	0.5	< 2	0.33	< 0.5	11	59	13	3.70	< 10	< 1	0.08	30	0.77	455
L3+00S 0+00	201 238	< 5	2.32	0.2	5	160	< 0.5	< 2	0.10	< 0.5	5	11	4	1.62	< 10	< 1	0.08	40	0.14	180
L3+00W 0+25W	201 238	10	1.30	0.2	10	110	< 0.5	< 2	0.20	< 0.5	3	13	5	1.59	< 10	< 1	0.08	20	0.22	145
L3+00W 0+50W	201 238	< 5	2.03	0.2	10	70	< 0.5	< 2	0.09	< 0.5	3	8	3	1.49	< 10	< 1	0.06	10	0.07	140
L3+00W 0+75W	201 238	15	2.53	0.2	25	80	< 0.5	< 2	0.05	< 0.5	4	10	4	1.75	< 10	< 1	0.06	10	0.09	95
L3+00W 1+00W	201 238	< 5	2.61	0.8	< 5	150	< 0.5	< 2	0.12	< 0.5	6	20	8	2.10	< 10	< 1	0.05	10	0.26	180

CERTIFICATION : B. Cargli

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STETSON RESOURCE MANAGEMENT CORP.

13 - 1155 MELVILLE ST.
VANCOUVER, BC
V6E 4C4
Project : NASH
Comments:

Date : 4-DEC-89
Invoice # : I-8931014
P.O. # :

CERTIFICATE OF ANALYSIS A8931014

SAMPLE DESCRIPTION	PREP CODE	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
L2+00S 1+25W	201 238	1	0.04	12	1220	4	< 5	2	14	0.11	< 10	< 10	32	< 10	94
L2+00S 1+50W	201 238	4	0.02	8	1100	8	< 5	1	14	0.08	< 10	< 10	39	< 10	92
L2+00S 1+75W	201 238	1	0.03	12	1570	10	< 5	2	19	0.11	< 10	< 10	44	< 10	112
L2+00S 2+00W	201 238	1	0.03	12	1650	4	< 5	2	19	0.13	< 10	< 10	53	< 10	84
L2+00S 2+25W	201 238	< 1	0.04	8	840	4	< 5	1	14	0.11	< 10	< 10	41	< 10	56
L2+00S 2+50W	201 238	1	0.04	11	2090	8	< 5	1	15	0.11	< 10	< 10	36	< 10	58
L2+00S 2+75W	201 238	1	0.02	11	1350	2	< 5	2	16	0.11	< 10	< 10	45	< 10	62
L2+00S 3+00W	201 238	1	0.02	8	490	2	< 5	2	34	0.13	< 10	< 10	43	< 10	50
L2+00S 3+25W	201 238	< 1	0.03	9	900	8	< 5	2	29	0.09	< 10	< 10	41	< 10	76
L2+00S 3+50W	201 238	< 1	0.03	15	2100	8	< 5	3	26	0.10	< 10	< 10	49	< 10	90
L2+00S 3+75W	201 238	< 1	0.03	6	280	4	< 5	1	23	0.10	< 10	< 10	33	< 10	44
L2+00S 4+00W	201 238	< 1	0.03	3	180	2	< 5	1	17	0.09	< 10	< 10	22	< 10	30
L2+00S 5+25W	201 238	< 1	0.02	8	710	12	< 5	2	23	0.10	< 10	< 10	46	< 10	44
L2+00S 5+50W	201 238	1	0.03	8	960	6	< 5	1	9	0.08	< 10	< 10	35	< 10	56
L2+00S 5+75W	201 238	< 1	0.03	8	630	14	< 5	2	19	0.11	< 10	< 10	44	< 10	60
L2+00S 6+00W	201 238	1	0.03	8	750	8	< 5	2	11	0.12	< 10	< 10	45	< 10	56
L2+00S 6+25W	201 238	1	0.03	8	1450	12	< 5	1	9	0.11	< 10	< 10	44	< 10	76
L2+00S 6+50W	201 238	1	0.03	11	1520	8	< 5	2	13	0.11	< 10	< 10	44	< 10	76
L2+00S 7+25W	201 238	< 1	0.03	2	160	8	< 5	< 1	12	0.07	< 10	< 10	13	< 10	16
L2+00S 7+50W	201 238	2	0.03	6	780	10	< 5	1	10	0.10	< 10	< 10	34	< 10	52
L2+00S 7+75W	201 238	1	0.03	13	400	12	< 5	3	32	0.11	< 10	< 10	37	< 10	56
L2+00S 8+00W	201 238	1	0.03	15	1360	6	< 5	3	53	0.10	< 10	< 10	46	< 10	58
L2+00S 8+75W	201 238	1	0.02	12	1090	4	< 5	2	21	0.10	< 10	< 10	47	< 10	52
L2+00S 9+00W	201 238	< 1	0.02	10	650	4	< 5	2	26	0.09	< 10	< 10	43	< 10	58
L2+00S 9+25W	201 238	2	0.02	21	920	10	< 5	7	93	0.05	< 10	< 10	46	< 10	102
L2+00S 9+50W	201 238	1	0.03	15	620	10	< 5	4	54	0.09	< 10	< 10	48	< 10	84
L2+00S 9+75W	201 238	< 1	0.02	20	1150	8	< 5	3	33	0.11	< 10	< 10	52	< 10	94
L2+00S 10+00W	201 238	1	0.02	17	1680	6	< 5	2	37	0.10	< 10	< 10	52	< 10	110
L2+00S 10+25W	201 238	< 1	0.02	20	1710	6	< 5	2	40	0.10	< 10	< 10	52	< 10	106
L2+00S 10+50W	201 238	1	0.02	18	1400	2	< 5	2	45	0.10	< 10	< 10	55	< 10	102
L2+00S 10+75W	201 238	< 1	0.02	21	1240	2	< 5	3	39	0.11	< 10	< 10	63	< 10	110
L2+00S 11+00W	201 238	1	0.02	18	1350	6	< 5	3	23	0.12	< 10	< 10	66	< 10	98
L2+00S 11+25W	201 238	1	0.02	23	1290	8	< 5	4	44	0.13	< 10	< 10	75	< 10	122
L2+00S 11+50W	201 238	< 1	0.02	24	1640	8	< 5	3	42	0.13	< 10	< 10	68	< 10	118
L2+00S 11+75W	201 238	1	0.02	24	1150	6	< 5	4	51	0.13	< 10	< 10	76	< 10	96
L3+00S 0+00	201 238	< 1	0.03	9	1240	6	< 5	1	15	0.08	< 10	< 10	32	< 10	50
L3+00W 0+25W	201 238	< 1	0.02	4	190	16	< 5	2	34	0.12	< 10	< 10	39	< 10	46
L3+00W 0+50W	201 238	< 1	0.03	5	1580	6	< 5	1	11	0.07	< 10	< 10	27	< 10	36
L3+00W 0+75W	201 238	1	0.03	8	2230	6	< 5	1	9	0.10	< 10	< 10	35	< 10	52
L3+00W 1+00W	201 238	1	0.02	15	1130	4	< 5	2	23	0.11	< 10	< 10	47	< 10	58

CERTIFICATION : B. Cargill

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CERTIFICATE OF ANALYSIS A8931014

SAMPLE DESCRIPTION	PREP CODE	Au ppb FA+AA	Al %	Ag ppm	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
L3+00W 1+25W	201 238	< 5	2.45	0.4	5	100	< 0.5	< 2	0.09	< 0.5	6	16	6	2.00	< 10	< 1	0.04	10	0.21	180
L3+00W 1+50W	201 238	5	1.68	0.2	40	120	< 0.5	< 2	0.32	< 0.5	6	16	6	2.03	< 10	< 1	0.07	10	0.19	650
L3+00W 1+75W	201 238	< 5	2.59	0.4	< 5	80	< 0.5	< 2	0.16	< 0.5	6	13	6	1.90	< 10	< 1	0.09	10	0.17	305
L3+00W 2+00W	201 238	5	2.05	0.4	< 5	100	< 0.5	< 2	0.10	< 0.5	7	12	6	1.80	< 10	< 1	0.05	10	0.12	485
L3+00W 2+25W	201 238	< 5	2.00	0.6	5	200	< 0.5	< 2	0.21	< 0.5	8	15	9	2.03	< 10	< 1	0.10	20	0.23	270
L3+00W 2+50W	201 238	5	2.59	1.4	10	140	< 0.5	< 2	0.12	< 0.5	10	11	7	1.93	< 10	< 1	0.05	10	0.15	490
L3+00W 2+75W	201 238	< 5	2.76	0.6	5	90	< 0.5	< 2	0.08	< 0.5	9	9	6	1.70	< 10	< 1	0.04	< 10	0.10	715
L3+00W 3+00W	201 238	< 5	2.28	0.8	5	90	< 0.5	< 2	0.06	< 0.5	7	9	6	1.72	< 10	< 1	0.03	< 10	0.11	450
L3+00W 3+25W	201 238	< 5	2.23	0.4	< 5	90	< 0.5	< 2	0.07	< 0.5	8	12	6	1.94	10	< 1	0.03	10	0.12	470
L3+00W 3+50W	201 238	< 5	2.75	0.4	5	90	< 0.5	< 2	0.07	< 0.5	6	11	7	1.95	< 10	< 1	0.04	10	0.16	275
L3+00W 3+75W	201 238	< 5	2.72	0.6	5	110	< 0.5	< 2	0.06	< 0.5	8	13	7	1.94	< 10	< 1	0.05	10	0.15	185
L3+00W 4+00W	201 238	< 5	2.97	0.4	< 5	90	< 0.5	< 2	0.05	< 0.5	5	9	6	1.91	< 10	< 1	0.03	10	0.11	140
L3+00W 4+25W	201 238	< 5	2.38	< 0.2	< 5	70	< 0.5	< 2	0.06	< 0.5	5	10	4	1.95	< 10	< 1	0.02	< 10	0.13	435
L3+00W 4+50W	201 238	5	3.62	< 0.2	25	130	0.5	< 2	0.07	< 0.5	8	15	9	2.18	< 10	< 1	0.04	10	0.16	620
L3+00W 4+75W	201 238	< 5	2.64	0.4	< 5	100	0.5	< 2	0.13	< 0.5	9	18	10	2.02	10	< 1	0.05	20	0.25	220
L3+00W 5+00W	201 238	< 5	3.60	0.6	< 5	120	< 0.5	< 2	0.06	< 0.5	9	16	9	2.22	10	< 1	0.06	20	0.18	195

CERTIFICATION : B. Cargill

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Project : NASH
Comments:

Date : 4-DEC-89
Invoice # : I-8931014
P.O. # :

CERTIFICATE OF ANALYSIS A8931014

SAMPLE DESCRIPTION	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
L3+00W 1+25W	201	238	2	0.02	13	2040	2	< 5	2	12	0.10	< 10	< 10	41	< 10	62
L3+00W 1+50W	201	238	6	0.02	10	2290	8	< 5	2	33	0.10	< 10	< 10	51	< 10	82
L3+00W 1+75W	201	238	< 1	0.03	13	1900	4	< 5	2	17	0.11	< 10	< 10	40	< 10	72
L3+00W 2+00W	201	238	1	0.03	13	2030	6	< 5	1	14	0.11	< 10	< 10	42	< 10	88
L3+00W 2+25W	201	238	1	0.03	18	1300	4	< 5	2	32	0.12	< 10	< 10	54	< 10	56
L3+00W 2+50W	201	238	1	0.04	16	1540	4	< 5	2	21	0.11	< 10	< 10	42	< 10	66
L3+00W 2+75W	201	238	< 1	0.03	12	2210	8	< 5	1	11	0.11	< 10	< 10	33	< 10	64
L3+00W 3+00W	201	238	1	0.03	11	1540	4	< 5	1	9	0.11	< 10	< 10	36	< 10	50
L3+00W 3+25W	201	238	< 1	0.03	11	1210	6	< 5	1	12	0.11	< 10	< 10	42	< 10	58
L3+00W 3+50W	201	238	< 1	0.03	11	1310	< 2	< 5	2	12	0.12	< 10	< 10	40	< 10	58
L3+00W 3+75W	201	238	< 1	0.03	14	1370	2	< 5	2	11	0.12	< 10	< 10	41	< 10	58
L3+00W 4+00W	201	238	< 1	0.02	10	1280	2	< 5	1	9	0.10	< 10	< 10	38	< 10	48
L3+00W 4+25W	201	238	< 1	0.02	8	870	< 2	< 5	1	8	0.11	< 10	< 10	42	< 10	48
L3+00W 4+50W	201	238	< 1	0.02	16	1480	12	< 5	2	12	0.11	< 10	< 10	44	< 10	56
L3+00W 4+75W	201	238	< 1	0.03	14	610	10	< 5	2	24	0.10	< 10	< 10	43	< 10	54
L3+00W 5+00W	201	238	< 1	0.03	16	930	8	< 5	2	14	0.13	< 10	< 10	48	< 10	70

CERTIFICATION : B. Cargill

APPENDIX III

PETROGRAPHIC ASSESSMENT

NASH PROJECT

VERNON AREA, BRITISH COLUMBIA

JANUARY, 1990

Table of Contents

PETROGRAPHY

Twenty-five rock samples from the Siwash 3 claim area were examined petrographically to determine the nature of the major rock units and associated alteration sequence. Rock classification was established on the basis of visual estimates of minerals and lithic clast percentages in thin sections and hand samples. Prinicple emphasis was directed towards evaluating varitations in the paleochannel (?) tuffs, 20 samples of which were studied. The remaining five samples include two porphyritic rhyolites (from the paleochannel (?) rhyolite flow), and two porphyritic trachytes and one porphyritic trachyandesite from the paleochannel host trachyandesite-trachyte flow sequence. Most of the samples were stained for potassium, and K-feldspar generally proved to be the most abundant primary mineral. Rock names assigned to the samples are listed in Table 1 and general petrographic and alteration features are summarized in Table 2. Petrographic description abbreviations and lithic clast symbols are given in Appendix A, whereas individual sample description are compiled in Appendix B.

Only three samples of paleochannel host flow rocks were analyzed petrographically and all are very potassic. Two of these samples (V4 and V22) were collected from the cliff top above Bouleau Creek southwest of the paleeochannel contact, whereas the third sample (V46) is from an exposure near the east margin of the tuff deposit. Sample V22 is a weakly sericitized porphyritic trachyandesite with abundant phenocrysts of sodic andesine (~ 40%, some to 10mm) and variable K-feldspar and augite (~ 5% each, most less than 1 mm) set in a felty groundmass dominated by microlites of sanidine (?) and plagioclase. Samples V4 and V46 are porphyritic trachytes with abundant phenocrysts of sanidine (25 - 35%, some to 10mm) and rare amphibole and pyroxene (?) (~ 1%, 0.2 - 0.3 mm) in a felty to trachytic groundmass dominated by sanidine (?) microlites. Sample V46 also contains about 5% orthoclase that occurs as phenocrysts, (or xenocrysts) that typically are larger than the more abundant sanidine phenocrysts, are more sericitically altered, and commonly exhibit weak resorption. The orthoclase apparently crstallized earlier in the melt at depth (higher pressure) or reflects a xenocrystal source, probably the same source responsible for locally abundant orthoclase clasts in the paleeochannel tuffs. These samples reflect considerable alteration and silica flooding, especially sample V4. Wesk to moderate sericitization of K-feldspar is common and some phenocrysts are replaced by quartz and/or chalcedony, and/or calcite. Small (0.01 - 0.03mm long) rod shaped to prismatic of iron oxides are abundant in the groundmass of V46 and many of these may be pseudomorphed amphibole .s. Sample V4 is pervasively altered by silica, :e and carbonate and is cut by abundant veinlets of chalcedony, and/or sericite, with minor calicite.

'o evaluated rhyolite flow samples (V16G and V21) are 'aphically similar, being microporphyritic and .ing crude flow banding and locally vesicular layers. .enocrysts (< 2.0 mm) comprise as much as 25% of the .nd these are dominated by quartz, sanidine, oligoclase 'istobalite, generally in that order of decreasing .ce. Biotite phenocrysts (0.1 - 2.0 mm) also are , but rarely exceed 1% of total composition. The fine groudmass is composed mostly of feldspar microlite own with patchy to irregular quartz grains ar:quartz ratio approximately 4:1), and crystals exceed 0.03 mm. Biotite and hematite (after pyrite?) esent as disseminated grains and each may comprise as s 1% of the groundmass. Traces of zircon also were d.

eochannel tuffs exhibit a wide range of compositions, s, and alteration, but most are characteristically c. Classification of these rocks is based primarily e, size, and relative abundance of clasts, closely ng the scheme recommended by the IUGS Subcommission on tematics of Igneous Rocks (Schmid, 1981). Subdivision ash-lapillus and lapillus-block size clasts is 2mm mm respectively. Tuffs commonly are described on the of the princple size and type of clasts (e.g. lithic tuff, crystal ash tuff etc.). However, in order to a more quantitative evaluation of the Siwash claim posits, additional modifiers are used un this report icate relative percentages of other significant sizes pes of clasts. For example, if lithic, crysal and clasts are all present in at least 10% concentration most abundant and vitric least abundant), and mately 60% of the clasts exceed 2mm, this rock would fered to as a vitric-crystal-lithic ash-lapilli tuff. greatest percentage of clasts exceed 64 mm in r, the rock would be called a vitric-crystal-lithic illi-block tuff, or ash-lapilli tuff breccia.

ally all size-combinations of tuff types are present Siwash claim block paleochannel, but crystal-lithic, crystal, ash-lapilli and/or lapilli-ash types are most t (Table 1). The various types grade into one another outcrop and thin section scale, thus map units are

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(b) flow banded chalcedony ± sanidine ± biotite. (Possibibly an aphanitic trachyte or rhyolite flow or bedded fine ash tuff.)

(c) radial chalcedony aggregates with patchy K-feldspar crystallites and/or chalcedony ± quartz ± microphenocrysts of sanidine and/or biotite. (Probably an earlier generation tuff.)

(d) spherulitic chalcedony with K-feldspar crystallites ± biotite. (Probably a vitrophyric trachyte.)

(e) pumiceous fragments replaced by chalcedony ± relict K-feldspar microphenocrysts. (Probably trachytic.)

(f) hematitic microporphyritic trachyte with felty K-feldspar ± plagioclase groundmass ± biotite.

(g) porphyritic to microporphyritic (and locally vitropyric) andesite or trachyandesite.

(h) patchy chalcedony and K-feldspar crystallites with microphenocrysts of quartz (possibly a microporphyritic rhyolite).

(i) perlitic relicts of original bglassy volcanic rock

(j) plumose chalcedony with microphenocrysts of biotite ± sanidine ± plagioclase (possibly a latite or trachyte)

(k) radial aggregates (spherulites) of feldspar and quartz crystallites from devitrified glass, ± biotite. (Felsic vitrophyre)

(l) granite

Clasts of micropophyritic trachyte (f) and andesite (g) commonly are less silicified than other lithic clast type.

ALTERATION

The paleochannel tuff deposit exhibits widespread silicification in the form of pervasive flooding and replacement of clasts and/or groundmass by microcrystalline quartz and irregular areas of gray, blue gray, tan to brown chalcedony, chalcedonic chert or jasper, and veins, veinlets, microveinlets and small vugs filled with chalcedony, cockscomb quartz crystals and/or linings of tiny drusy quartz crystals. The latest quartz crystals commonly are coated with thin rims of goethite-limonite. Veined tuff has been locally brecciated and annealed by microcrystalline quartz and/or red jasperoid. Local black chalcedony and microcrystalline quartz may be sulfide bearing.

Most of the tuff samples examined petrographically, with the exception of those just west of the claim block boundry (samples V16 A, C and D), exhibit moderate to strong silicic alteration characterized by abundant chalcedony and lesser amounts of quartz. Phases with maximum silicification are indicated by an "s" suffix on the map symbol (e.g. Tlts.). The chalcedony occurs in veinlets and is as pervasive replacement and flooding of lithic and crystal clasts and matrix. The chalcedony generally is granular but also occurs as radial aggregates and in colloform textures. Granular microcrystalline to locally medium grained quartz commonly is intergrown with, or possibly recrystallized from, chalcedony. Quartz also occurs in a drusy habit in veins and vugs where it may coat chalcedony.
An attempt was made in the thin sections to distinguish silica flooding from replacement. The principle distinction between the two processes is that flooded areas have distinct but irregular contacts with their hosts and commonly grade into associated veins or veinlets. Furthermore, flooded silicia commonly disrupts host materials, particularly crystal and lithic clasts. Most of the flooded silica in the examined samples is clearly a later, finer grained variety of chalcedony that visably disrupts earlier silicified rock and crystal fragments.

Multiple silicification episodes were recognized in more than half of the samples evaluated petrographically. After initial replacement of clasts and matrix by chalcedony and quartz, many samples were cut by quartz and/or chalcedony veinlets. This veining event commonly is accompanied by flooding and/or replacement by very fine grained chalcedony characterized by distinct contacts with host material. Formation of drusy quartz lining many open veinlets and vugs probably occured at this time. Some samples reflect a third episode of silicia introduction indicated by very late quartz veinlets that cut all earlier silica phases as well as hematite/goethite that commonly coats quartz and/or chalcedony in veins and vugs.

Lithic clasts exhibit a wide range of silica replacement textures that apparently are controlled by primary igneous textures such as flow banding, spherulites and pumice fabric. These primary textures responded somewhat differently to different silicification events. Because of the wide range of grain size and secondary textures of pervasive replacemnt silica, it generally is very difficult to determine if any of the clasts were altered prior to eruption. However, in sample V15, biotite in the matrix is fresh whereas biotite in lithic clasts is altered to chlorite, suggesting a pre-eruption alteration event.

Weak sericitization in the tuff apparently accompanied introduction of silica, and feldspar clasts, phenocrysts and matrix crystallites commonly exhibit irregular to patchy replacement by sericite. Intensity of alterationgenerally is greater for orthoclase clasts than for sanidine, and matrix K-feldspar crystallites may ve strongly altered locally. Many samples show evidence of possible dissolution of K-feldspar clasts and to a lesser extent small lithic clasts. Clast site vugs commonly are partially to completely filled by quartz, which is drusy in habit where open space persists. More typically, feldspar clasts or feldspar-rich rock fragments appear to have been altered to sericite which in turn was replaced by chalcedony and/or quartz.

Many tuff unit exposures are moderately to severely weathered and characterized by poor consolidation or nearly total disaggregation. Fine grained matrix material is most susceptible to weathering processes and apparently readily alters to clay with release of silica. Tuff phases that exhibi most intense weathering are indicated by a "W" suffix on the map symbol (e.g. Tltw) and predominate at lower elevations to the northeast where the plaeochannel fill has been dissected by Naswhito Creek.

The trachytic and trachyandesitic flows that host the paleochannel also exhibit varying degrees of alteration. Most common is weak phyllic alteration characterized by partial replacement of feldspar phenocrysts and groundmass by sericite, kaolinite, quartz and chalcedony. In some samples (e.g. V22) K-feldspar phenocrysts are completely sericitized, plagioclase phenocrysts and groundmass feldspats are weakly sericitized, and discontinuous veinlets of sericite are locally abundant. Quartz veins and/or veinlets commonly are present, and where most abundant, generally are accompanied by more intense alteration of host rock. For example, a porphyritic trachyte sample (V4) collected near the southwest edge of the tuff channel is cut by a complex, irregular veinlet system of sericite, quartz, chalcedony and carbonate, and is pervasively altered to this mineral assemblage. Based on cross-cutting relationships of veinlets, early sericite alteration apparently was followed by introduction of chalcedony and quartz, whereas carbonate sominated the final alteration event. Fe-mag minerals (biotite, amphibole, pyroxene), magnetite, ilmenite (?) and pyrite exhibit increasing alteration to hematite, goethite and/or limonite as intensity of oberall intensity of alteration increases. Although this sample was not chemically analyzed, significant levels of gold have been reported (Bill Dynes, pers. commun., 1989) from similarly veined and altered samples collicted near the southeast boundary of the paleochannel (near sample site V2). The most intensly altered rocks observed in the area (withe the exception of the extremely oxidized agglormerates to the north and northwest) appear to be related to fault zones (e.g. sample sites V34 and V36), which likely served as feeders for hydrothermal solutions.

Exposure of th rhyolite flow that locally overlies paleochannel tuffs do not exhibit any significant alteration. Although only two samples were evaluated petrographically, both are representative of the rock unit and the only alteration observed is oxidation of small pyrite(?) crystals to hematite and partial alteration of biotite to hematite and/or limonite.

STRUCTURE

The dominate structural features both observed and infered in the Siwash claim block are northeast and north-northwest trending faults. These trends are in general agreement with regional fault trends reported by Okulitch and Campbell (1979) and Church (1980), and are not inconsistent with structural lineaments inferred by Wood (198_?) from geophysical data. Inferred faults on Plates 1 and 2 are in part based on interpretations of geophysical data by Tom Mattich of Interpretex Resources Ltd. (J) Wetherill, per commun., 1989).

The most prominent apparent fault in the area is a northeast trending structure that extends across the northwest part of the claim block (along the northwest boundary of Plate 2) and is reflected by a prominent scarp of several hundred metres.

This fault appears to have influenced the development of the northeast trending paleochannel which it roughly parallels. Another northeast trending fault is present near the southern end of the claim block and may define a segment of the tuff fill contact with trachyte-trachyandesite flows. Although no exposures were observed at the tuff contact, small fragments of tuff were recovered at sample site V36 shere the fault cuts host flow rocks as well as at sample site V34 in a subsidiary subparallel fault about 40 metres to the northwest. The presence of these fragments provides strong support for a post-tuff age of movement on these faults. The intensity of wallrock alteration associated with these faults also provides a compelling argument that they, and similar unrecognized structures, probably served as conduits for hydrothermal solutions responsible fo rsilicification and mineralization in the paleochannel tuffs.

A significant north-northwest trending fault in the southwest corner of the claim block was observed in a cut of the timber road along the northeast slope of Bouleau Creek valley. This fault is characterized by a prominent gouge zone several feet wide, introduced quartz veins, and a possible syenitic dike. Evaluation of this structure clearly is warranted. A similar trending fault about 900 metres to the east is inferred from geophysical data. If present, this structure could be responsible for downdropping a small wedge of tuff, the presence of which also is referred from geophysical data. This inferred fault could have contributedsignificantly as a conduit for mineralizing fluids. Unfortunately the entire area of concern related to this possible fault is completely covered with glacial deposits.

MINERALIZATION

Anomalous gold values have been reported for the Siwash claim block from samples of silicified and veined (silica) trachytic tuffs in a paleochannel and from similarly altered adjacent host flows of trachyte/trachyandesite. Analyzed samples were collected from several sites within the paleochannel tuff unit as well as from moderately silicified flow rocks along the eastern edge of the paleochannel. Mineralization appears to be epithermal and is characterized by introduction of significant concentrations of silica in the form of chacedony and quartz that occur as host rock replacements and vein and vug fillings. Veins and vugs commonly are layered with early chalcedony followed by microcrystalline to cockscomb quartz ± drusy quartz ± hematite/goethite. Although sulfides appear to be rare, tiny pyrite grains (<0.5mm) are disseminated locally in some quartz veins as well as in silicified host tuff. In some samples, the sulfide grains (cubes) are completely altered to foethite/limonite, which also may be abundant along fractures, grain boundries and in vuggy areas.

Two northeast trending faults were recognized cutting trachytic/trachyandesitic flow rocks south of the tuff channel near the southern end of the claim block. Fault gouge and wallrocks are intensely silicified and sericitized and tabular veins of quartz and jasperiod cut intensely oxidized (goethite/limonite rich) gouge. Open spaces in both fault and host rocks are lined with drusy quartz. Although no geochemical analyses are available for this material, it is suspected that these and other similar faults may be the feeders for the hydrothermal solutions that mineralized the paleochannel tuffs. A similar fault further to the southwest in exposed in a logging road cut and appears to contain a thin syenitic dike, a relationship that is analogous to the Huntington property to the south along Whiteman Creek.

CONCLUSIONS

A large paleochannel of trachytic tuff containing anomalous gold values has been defined within the Siwash claim block. Extensive silicification and weak sericitization of the tuff rocks infer an epithermal system, and similar alteration of nearby fault zones and their trachytic/trachyandesitic host rocks suggest possible conduits for hydrothermal solutions. The general similarity of characteristics of observed faults in the Siwash area with the highly mineralized faults at the Huntington property about seven kilometers to the southwest, enhance the liklihood of discovery of significant gold minerialization on the Siwash claims. As evident at the Huntington property, tuffs cut by faults provide excellent hosts for gold mineralization, and the volume of tuff in the Siwash claim block is substantial. The tuff filled paleochannel ranges from 500-1000 meters wide, extends at least 3 km across the claim block, and thickness may exceed 100-200 meters. Furthermore, the channel may extend an additional 1-3 km northeast from Nashwhito Creek, and if penetrated by fault "feeders" in that area, could also be mineralized.

The potential of the Siwash property is substantial and a vigorous exploration program is warranted. A systematic geochemical sampling program shoud be initiated as soon as possible and exploratory trenching and drilling should be scheduled for areas of maximum potential. Additional detailed mapping and sampling shoulkd be conducted over unmapped portions of the Siwash claim block and over claims in the Nash property to assess mineralization potential in those areas.

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CERTIFICATE

I, Malcolm E. McCallum of the Department of Earth Resources, Colorado State University, Fort Collins, Colorado 80523, hereby certify that:

1. I am a professor of Geology at Colorado State University where I have been employed in a teaching and research capacity since 1962.

2. I hold degrees in Geology from Middlebury College (A.B., 1956), the University of Tennessee (M.S., 1958) and the University of Wyoming (Ph.D., 1964).

3. I have worked as a WAE research geologist (part time) for the U.S. Geological Survey on structural, petrologic, geochemical, and minerals related (emphasis on precious metals) programs in the Rocky Mountain region (New Mexico, Colorado, Wyoming, and Montana) from 1956 - 1983.

4. I have been involved in the kimberlite-diamond-precious metals related research since 1964, said research having been funded by a variety of agencies including the National Science Foundation, the Wyoming Geological Survey, the CSIR of South Africa, the Winston Foundation, and several exploration companies.

5. I have been involved in research and/or minerals evaluations related to diamonds, base and/or precious metals in Colorado, Wyoming, Arizona, Montana, Kansas, Kentucky, Tennessee, British Columbia, Alberta, South Africa, Lesotho, Swaziland, Botswana, Namibia, Western Australia and Venezuela. I have also worked in Guyana, Western Venezuela and Western South Africa, evaluating diamond placer deposits.

6. I am a fellow of the Geological Society of America and the Mineralogical Society of America, and a member of the Mineralogical Association of Canada, the American Association for the Advancement of Sciences, the Geochemical Society, the International Association of Geochemistry and Cosmochemistry, the Society of Exploration Geochemists, the Society of Economic Geologists, the Denver Region Exploration Geologists Society, the Colorado Mining Association, the Rocky Mountain Association of Geologists, the Colorado Scientific Society and Sigma Xi.

APPENDIX A

ABBREVIATIONS AND LITHIC CLAST SYMBOLS USED IN PETROGRAPHIC DESCRIPTIONS

Abbreviations

chaldy	chalcedony
qtz	quartz
Kspar	potassium feldspar
bio	biotite
pyx	pyroxene
lim	limonite
FeO_x	iron oxides
gm	groundmass
vnlt	veinlet
tr	trace
anh	anhedral
sub	subhedral
eu	euhedral
xl	crystal
rexl	recrystallized
x-sxn	cross section
alt	alteration
w/	with
abdnt	abundant
sub-ang	sub-angular
sub-rnd	sub-rounded

Lithic Clasts

(a) granular chalcedony and quartz (some with sanidine ± biotite)
(b) flow banded chalcedony
(c) radial chalcedony aggregates with patchy K-feldspar crystallites and/or chalcedony
(d) spherulitic chalcedony with K-feldspar crystallites
(e) pumiceous fragments replaced by chalcedony (some with relicts of K-feldspar phenocrysts)
(f) hematitic microporphyritic trachyte with felty K-feldspar groundmass
(g) porphyritic to microporphyritic (locally vitrophyric) andesite
(h) patchy chalcedony and K-feldspar crystallites with microphenocrysts of quartz
(i) perlitic relicts of original glassy(?) volcanic rocks
(j) plumose chalcedony with microphenocrysts of biotite ± plagioclase
(k) radial aggregates (spherulites) of feldspar and quartz crystallites from devitrification of glass, ± biotite.
(l) granite

APPENDIX B

PETROGRAPHIC DESCRIPTION
(abbreviations and symbols listed in Appendix A)

Specimen number V4

Locality Nash project, Vernon, B.C.

Rock Name altered porphyritic trachyte

Alteration type sericite - silicic - carbonate

Thin section quality some feldspar plucked

Date 2-15-90

Petrographer lmnk - mem

Hand sample/rock description Pale brown to maroonish brown weathering, maroon buff feldspar porphyry with aphanitic maroon to red groundmass. Phenocrysts (to 8mm) are predominately feldspar and typically are moderately to intensely altered. Variable amounts of smaller (generally <4mm) intensely altered amphibole and/or pyroxene may be present. Rock is locally amydaloidal (voids partially to completely filled with quartz, and commonly is cut by quartz and chalcedony veinlets.

( ) original %

Microscopic description

Primary					Alteration				
%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
(35) 10	Kspar phenocrysts (mostly sanidine)	.1-10	sub-eu	partially to totally altered to carb, chaldy/qtz, ser, hematite, some orthoclase	5	quartz	.02	anh	irregular veinlets with chalcedony
					3.5	chal-cedony		granular, pervasive replacement and veinlet	
	Groundmass								
(65) 10	Kspar micro-lites	.01	sub	felted to trachytic partially altered to hematite/goethite	15	carb-onate	.01	anh	pervasive replacement and veinlet
					15	seri-cite	.01	anh	yellow under plane, pervasive replacement and veinlet
					8	hematite	.01-.05	anh	rimmed Kspar, replaced groundmass microlites (some amph.?), disseminated in gm
					2	goethite limonite	.01	anh	

Primary textures Porphyritic with phenocyrsts of Kspar. Two of the larger phenos, with indistinct xl edges appear to be orthoclase. Many of the phenocrysts are partially to totally altered.

Groundmass consists of Kspar microlites with a felted to trachytic texture.

Groundmass and phenocrysts stained positiv for potassium feldspar.

Alteration textures Pervasive and veinlet alteration by chaldy/qtz, carbonate, and sericite. Kspar phenocrysts are partially to totally altered to chaldy/qtz, carbonate, and sericite. Kspar are altered to any one product to all three. Phenocrysts are commonly rimmed by hematite. Phenocrysts and groundmass are moderately altered to sericite. Sericite veinlets cut phenos & groundmass. Chalcedony and quartz have replaced phenos and chaldy/qtz veinlets cut phenos and gm & gm. Chaldy/qtz have brecciated the rock in places. Carbonate has altered phenos & gm and filled medial portions of chaldy/qtz veinlets. Based on cross cutting relationships of veinlets, early sericite alteration was followed by chalcedony/qtz and finally by carbonate.

Other

Specimen number V15

Locality Nash project, Vernon, B.C.

Rock Name potassic (trachytic) lithic-crystal lapilli-ash tuff

Alteration type silicic

Thin section quality good

Date 11-8-89

Petrographer lmnk - mem

Hand sample/rock description Pale orange buff weathering, pale gray to greenish gray lithic lapilli tuff. Grades to more crystal ash rich phases and tuff breccia with abundant large (to 15+cm) lithic clasts present locally in outcrop. Irregular microvugs lined with chalcedony and/or drusy qtz. Lithic clasts mostly pale green to gray and buff silicified (?) microporphyritic volcanics (some vitrophyric, flow banded) and earlier generation lithic-crystal tuffs; minor reddish brown porphyritic andesite (?) and pinkish buff to maroon porphyritic trachyte(?). Crystal clasts predominately feldspar, some minor biotite. Matrix very fine grained ash(?), appears silicified.

Microscopic description

	Primary					Alteration				
	%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
( ) original %	30	sanidine	.3-2.5	anh	broken crystals	30	chalcedony			granular, radial aggregates, colloform in vugs
(45)	40	orthoclase	.1-2.0	anh-sub	common broken xls partially altered to	8	quartz	.05-.1	anh→eu	granular, drusy xls in vugs, 5% of rock is drusy qtz
	1	biotite	.15-.55	sub	mostly unaltered partially altered to	1	paragonite sericite	.01-.05	anh	alteration of Kspar xls & Kspar in lthic clsts alt. of plag in lithic clasts
	tr	amphibole	.2	sub	pseudomorphs totally altered to chaldy/qtz, FeO$_x$	1	chlorite	.05	anh	alteration of biotite in lithic fragments
(30)	5	lithic clasts	1-10	sub-rnd	partially altered to chaldy/qtz, sericite, chlorite	2	opaques	.01	anh	brown-green in plane, disseminated in chaldy & clasts, less abundant in quartz
	24	matrix			totally silicified	2	limonite hematite	.01-.01 .02-.05	anh anh	disseminated in chaldy/qtz, rimmed clasts, alt of biotite
	tr	zircon			unaltered					

Primary textures

Primary texture of matrix has been completely destroyed by silicification.

Lithic clasts: listed in order of decreasing abundance

(a) *granular chadly/qtz ± sanidine
(b) *flow banded ± sanidine
(d) *spherulitic ± sanidine
(e) *pumiceous ± sanidine
(f) *porph trachyte with felted Kspar in groundmass, rare bio in gm, abundant hematite/limonite
(g) *porph andesite -intensely altered
(h) *silicified rhyolite (?)

Alteration textures Rock is strongly silicified by chaldy/qtz. Chalcedony and quartz have totally replaced the matrix, partially to totally replaced Kspar, amphibole, and lithic clasts. Quartz is intergrown with (recrystallized from) chalcedony. Lithic clasts have a range of replacement textures and grain size (coarse to fine grained qtz, chaldy, or intergrown qtz&chaldy). Biotite in lithic clasts only are altered to chlorite. Kspar have been partially dissolved and vugs filled with drusy qtz. Plagioclase in andesite clasts partially altered to paragonite.

Other Stained for K+. Clasts not totally silicified consists of K+ rich crystallites/glass. Felted feldspar in porphyritic clasts are potassic.

Specimen number V16A and V16C

Locality Nash Project, Vernon, B.C.

Rock Name vitric-crystal-lithic ash - lapilli tuff

Alteration type weak silicic

Thin section quality good

Date 2-1-90

Petrographer lmnk - mem

Hand sample/rock description Buff white weathering, grayish white crystal-lithic lapilli tuff with local tuff breccia in outcrop. Lithic clasts range to >30 cm, most 6<cm; silicified, cherty-looking gray, buff, brown, maroon and green microporphyritic volcanics(?) most abundant; microphenocrysts are quartz, biotite, and feldspar; reddish brown porph. andesite moderately abundant; some white to buff clasts intensely kaolinized. Quartz and feldspar crystals relatively abundant in matrix; some biotite crystals. Pink to white ash matrix partially cemented by silica.

Microscopic description

Primary					Alteration				
%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
15	sanidine	.05-2	anh	broken xls	15	chalcedony			granular, plumose, and radial aggregates, replaced matrix/gm in lithic frags
5	plagioclase An 40-52	.05-4	anh-eu	abundant broken xls	tr	opal			filled vesicles in pumice fragments, in lenses in matrix
1	zircon	.05-.25	anh eu	in matrix (and in lithic clasts)	tr	sericite	.01	anh	alteration of groundmass & feldspar in some lithic clasts
5	biotite	.05-2	anh-eu	anhedral xls more abundant	1	hematite limonite	<.01	anh	disseminated in some clasts
27	lithic clasts	.5-10	sub-rnd	abundant porphyritic clasts	1	opaques	.05-.1	anh-eu	square euhedra (pyrite?), opaques are disseminated as single xls in clasts and matrix
30	matrix	.01-.05							

Primary textures Crystal and lithic fragments are matrix supported in a matrix of ash, glass shards, and pumice fragments. All but a few crystals are broken.

Lithic fragments consist of, in order of decreasing abundance:

(a) granular chalcedony ± sanidine ± plagioclase ± biotite phenos

(j) plumose chalcedony phenos of ± biotite ± sanidine ± plagioclase

(c) radial aggregates of chalcedony phenos of ± sanidine ± biotite

(f) groundmass of trachytic sanidine(?) and phenos of ± sanidine ± bio ± plagioclase

(g) groundmass of pilotaxitic plagioclase and microphenos of plag (An40-45) + pyrox ± amph ± biotite

Alteration textures Alteration of the lithic clasts ranges from unaltered to partially or totally silicified. A few clasts are weakly altered to sericite. The range in alteration types indicates the clasts (or original rock) were altered prior to eruption. Chalcedony is the most abundant alteration mineral with lesser amounts of opal and sericite. Opal has filled vesicles in the pumice fragments and occurs in rare lenses in the matrix.

Specimen number V16A and V16C

Locality

Rock Name

Alteration type

Thin section quality

Date

Petrographer

Hand sample/rock description

Microscopic description

%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments

Primary textures

(k) radial aggregates of crystallites of feldspar + qtz (?) from devitrification of glass ± biotite

(e) pumice and opal filled vesicles

hematite and phenos of feldspar (plucked)

Most of the lithic fragments are porphyritic with sanidine > plagioclase = biotite. Rock chips were stained for potassium feldspar. Approx. 20% of clasts stained positive, probably as potassium rich glass and trachytic groundmass of potassium feldspar.

Matrix consists of generally isotropic ash, glass shards, and pumice. The matrix, in places, has a very low birefringence (chalcedony or devitrified ?, too fine grained to determine).

Other

Specimen number V16D

Locality Nash Project, Vernon, B.C.

Rock Name vitric ash tuff and vitric-crystal-lithic ash lapilli tuff

Alteration type weak silicic

Thin section quality good

Date 2-2-90

Petrographer lmnk - mem

Hand sample/rock description Light green laminated ash tuff with small amount of biotite, in contact with light green lapilli tuff with pumaceous fragments containing biotite, quartz, and feldspar crystals

Microscopic description

Primary					Alteration				
%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
10	quartz	.01-.05	ang	some grains could be Kspar (too small to determine)					
5	biotite	.5-1.0	sub						
tr	plagioclase	.01-.05	ang	polysynthetic twins	5	sericite	.01	anh	disseminated in matrix, rimmed vesicle walls in lithic fragments
30	matrix			glass (isotropic) granular & rod shapes, ash or glass dust	5	chalcedony			abundant radial aggregates, granular
20	lithic clasts	1-10	rnd	banded glass - pumice	18	opal			tan to brown under plane light
5	vesicles	.1-1		5% still open, most are filled with opal/chaldy	2	green-brown inclusions	.01		colors under plane light, disseminated in matrix, weak to moderate birefringence

Primary textures Laminations in ash are defined by the amount of green to brown solid inclusions in the volcanic glass (colors under plane light). Long dimensions of broken crystals and of biotite oriented parallel to the laminations.

Lithic clasts approximately equal amounts of pumice and banded glass, both clast types are present without crystals or with trace amounts of biotite - sanidine-orthoclase(?) and very rare plagioclase

Alteration textures Alteration may be deuteric or hydrothermal. Origin of green color - some may be due to disseminated sericite in matrix and alteration of vesicles in pumice to sericite; some disseminated green mineral in matrix may be chlorite but the grains are very small; some green color may be a yellow-green from jarosite (?).

Most of the vesicles in the clasts are filled with opal which has partially recrystallized to chalcedony. The matrix is weakly flooded by chalcedony. Chalcedony veinlets cut clasts & matrix.

Stained for potassium feldspar - rare laminations of ash and some of the matrix around the lithic clasts stained positive.

Specimen number V16G & V21

Locality Nash Project, Vernon, B.C.

Rock Name porphyritic rhyolite

Alteration type

Thin section quality plucked

Date 2-1-90

Petrographer lmnk - mem

Hand sample/rock description Buff white to pinkish white weathering, light grey porphyritic rock with quartz, cristobalite, sanidine, and biotite phenocrysts in an aphanitic groundmass.
- trace of pyrite oxidized to hematite
- crudely banded, layers average ~2mm thick, locally
- vesicular

Microscopic description

Primary phenocrysts					Primary groundmass				
%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
10	quartz	.2-.5	anh-eu	resorbed, some broken xls, common square outlines	58	feldspar	<.01-.02	anh-sub	microlites
1	biotite	.1-2.0	anh-sub	partially altered to limonite	14	quartz	.01-.03	anh	patchy intergrowths with feldspar
5	plagioclase	.1-1.0	anh-eu	common broken xls	1	biotite	.01	anh	
5	sanidine	.1-2.0	anh-eu	some resorbed & broken xls	tr	zircon	.02	anh	
5	cristobalite	.2-.5	sub-anh	commonly plucked	1	hematite	.01-.02	anh	alteration of biotite, disseminated in gm as pseudomorphs after pyrite (?)

Primary textures Porphyritic with phenocrysts of quartz, sanidine, plagioclase, biotite, and cristobalite. Moderately abundant broken crystals.
Groundmass consists of trachytic (exhibited more in V21) and felted microlites of feldspar.
Rock chip stained for potassium feldspar - positive stain for Kspar in groundmass and phenocrysts.
Quartz in groundmass appears to be intergranular to the feldspar.
Plagioclase phenocrysts are oligoclase in composition.
Rock name base on phenocrysts.

Alteration textures Rock is unaltered except for possible oxidation of pyrite (?) to hematite.

Opaques/mineralization

Other

Specimen number V-22

Locality Nash project, Vernon, B.C.

Rock Name porphyritic trachyandesite

Alteration type weak sericitic

Thin section quality good

Date 2-15-90

Petrographer lmnk- mem

Hand sample/rock description Olive gray weathering, dark grey porphyritic with aphanitic groundmass. Abundant phenocrysts of plagioclase (4-10mm phenos comprise 10-15% of rock); less abundant pyroxene (2-8mm, ~5%). Locally abundant vesicles and weathered out phenocryst sites commonly filled with chalcedony.

Microscopic description

Primary					Alteration				
%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
	PHENOCRYSTS								
40	plagioclase	.03-10	sub	weakly altered to sericite					
(5)	Kspar (?) (pseudomorphs)	.05-1.0	sub	totally altered to sericite () original ?	7	sericite	.01	anh	pervasive alteration of possible Kspar, weak pervasive alteration of plagioclase and groundmass; discontinuous veinlets of sericite cut phenos & gm
5	augite	.03-1.0	sub-eu	relatively unaltered					
	GROUNDMASS								
48	Kspar & plag	.02	anh-sub	felted microlites weakly altered to sericite					
2	opaques	.01-.05	anh-sub	disseminated in groundmass and rarely in phenos					

magnetite (?) rock is magnetic

Primary textures Porphyritic with phenocrysts of plagioclase, augite, and possible Kspar (?) in a felted groundmass of plag and Kspar microlites. Groundmass in rock chip stained positive for potassium feldspar. Rock appears to be glomeroporphyritic in places. Plagioclase composition is oligoclase-andesine.

Alteration textures Groundmass and plagioclase phenocrysts are weakly altered to sericite and cut by sericite veinlets. Other phenocryst sites are totally altered to sericite (Kspar ? sites based on size and intensity of alteration).

Opaques/mineralization

Other

Specimen number V-31

Locality Nash Project, Vernon, B.C.

Rock Name silicified trachytic(?) crystal ash tuff

Alteration type silicic

Thin section quality feldspar are plucked

Date 11-9-89

Petrographer lmnk - mem

Hand sample/rock description Pink weathering, pinkish buff to buff brown fragmented & annealed two generation silicified crystal ash tuff. Feldspar crystals (to 2mm) relatively abundant, weathered biotite (2mm) sporadically distributed; tiny opaque mineral grains (magnetite? 0.5mm) abundant in matrix which is very fine grained (ash?) and apparently completely silicified. Lithic clasts predominantly earlier generation tuff although a few 1-2cm fragments of orange buff porphyritic trachyte were observed in outcrop. Rock pervasively flooded by chalcedony and microcrystalline quartz; some chalcedony and/or quartz veinlets crosscut clasts and rock matrix. Fine grained drusy qtz common in some veinlets and weathered out crystal clast sites.

Microscopic description

Primary					Alteration				
%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
8	sanidine				44	chalcedony			granular, pervasive replacement, rare veinlet
2	orthoclase	.1-2.0	anh	common broken xls, irregular from replacement by quartz/chalcedony	30	quartz	.01-.2	anh→eu	intergrown with chalcedony (rexl from chaldy?), rare irregular vnlet, drusy xls
					11	Hematite limonite	<.01	anh	disseminated in chaldy but not as abdnt in qtz, alt of bio
1	biotite	.2-1.0	anh	stained by limonite	2	opaques	.05-.2	sub-eu	euhedra have square outline single xls disseminated in chady/qtz, black in plane
tr	zircon	.2	sub	opaque rim	1	opaques	<.01	anh	brown in plane light, disseminated in chalcedony, less abundant in quartz
10	groundmass(?)	.05-.1	sub	Kspar(?) partially replaced by					

Primary textures No apparent lithic clasts other than earlier generation trachytic tuff. Original %'s of Kspar and possible groundmass were probably higher. Outlines of possible Kspar in groundmass barely distinguishable in chalcedony/quartz. Outlines sometimes defined by opaques.

Alteration textures Rock is strongly and pervasively silicified by chalcedony and quartz. Kspar crystals are partially replaced by chalcedony and quartz along crystal boundaries, cleavage, and parallel fractures. Veinlets of chalcedony and irregular veinlets of quartz cut clasts and pervasive silicification. Cross cutting relationships of the veinlets not observed.

Other Stained for K^+ - groundmass not replaced by chalcedony/quartz stained positive for potassium feldspar

Specimen number V33

Locality Nash project, Vernon, B.C.

Rock Name trachytic crystal-lithic ash-lapilli tuff

Alteration type silicic

Thin section quality good

Date 11-10-89

Petrographer lmnk - mem

Hand sample/rock description Pale greenish buff to orange brown weathering, pale green to greenish grey crystal-lithic ash-lapilli tuff. Lithic clasts comprise >50% of the rock and ~60% of these are >4mm; some block clasts exceed 10 cm. Clasts are mostly buff to brownish buff, green, maroon, and gray, and most appear to be silicified vitrophyric and microporphyritic volcanic rocks (trachyte and rhyolite ?). Some clasts are completely limonitized. Crystal clasts range to ~3mm and are predominately feldspar with minor biotite and quartz. Tuff matrix is almost entirely silicified but apparently was mostly ash (some possibly vitric)

Microscopic description

	Primary					Alteration				
	%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
)original 5%	2 13	orthoclase sanidine	.1-2.0	anh-sub	abundant broken xls some sub-eu xls partially alt to chaldy/qtz/sericite					
(55)	10	lithic clasts	.5-.15	sub-rnd	partially altered to →	50	chalcedony			granular pervasive replacement, rare veinlets
(29)	5	matrix			partially altered to → no birefringence	15	quartz	.01-.2	anh→eu	granular, intergrown with (rexl from) chalcedony, drusy euhedra in vugs, rare veinlets
	1	biotite	.3	sub	stained by limonite	tr	sericite	.01	anh	rare alteration of clasts
						1	opaques	.01-.02	anh→eu	euhedra have square outlines, abundant in clasts, xl fragments, filled vugs
	2	opaques	.01		brown under plane light, in clasts, matrix, and chaldy/qtz	1	limonite hematite	.01	anh	abundant in silicified clasts, rimmed veinlets, filled vugs

Primary textures

Small amount of possible primary matrix, somewhat granular, no to very weak birefringence.

Lithic clasts: listed in order of decreasing abundance

(c)*fibrous radial aggregates of crystallites and/or chalcedony

(a)*granular chaldy/qtz ± sanidine

(b)* flow banded sanidine

(d)* spherulitic sanidine

(e)* one granitic clast

Alteration textures Matrix has been nearly totally replaced by chalcedony and quartz. Clasts are partially to totally replaced by chaldy/qtz. Rare veinlets of coarser grained chaldy/qtz cut clasts and silicified matrix.

Opaques/mineralization

Other Stained for Kspar - some clasts (matrix), matrix, and all crystals stained positive for Kspar.

Specimen number V-40

Locality Nash project, Vernon, B.C.

Rock Name intensely silicified trachyte(?) crystal-vitric ash tuff

Alteration type silicic

Thin section quality centers of feldspar plucked

Date 11-10-89

Petrographer lmnk- mem

Hand sample/rock description Gray weathering, gray white intensely silicified vitric-crystal-lithic ash-lapilli tuff. Lithic clasts apparently vitrophyric and/or microporphyritic volcanics, but all intensely silicified. Flooding of chalcedony and microcyrstalline quartz pervasive, lithic clasts and tuff matrix esentially entirely replaced. Microveinlets of chalcedony and/or quartz abundant as are vuggy areas (most 1cm long and 2-4mm wide) lined with chalcedony, chalcedony and drusy quartz, or drusy quartz. Many vugs and open veinlets are flooded with limonite which coats earlier mineral phases.

Microscopic description

Primary					Alteration				
%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
3	sanidine				44	chal-cedony			granular, replaced matrix, filled vesicles
0.5	ortho-clase	.3-1.2	sub	weakly altered to brown opaques	50	quartz	.02-.1	anh-sub-eu	anhedral granular crystals intergrown with chaldy, filled abundant vesicles and vugs (20% of rock), euhedra as drusy xls in vugs
1	biotite	.2-.5	anh	unaltered					
					tr	sericite	<.01	anh	weak alteration of Kspar
	matrix			replaced by chalcedony & quartz	1	opaques	.01	anh	black and brown under plane, disseminated in chaldy/qtz, filled drusy qtz lined vugs
tr	zircon	.1	anh-sub	unaltered	1	limonite	<.01	anh	disseminated in chaldy/qtz, in rare veinlets, filled drusy qtz lined vugs

original %

(96)

Primary textures

(e) Relict flow bands and vesicular texture of pumice defined by opaques and limonite.

Alteration textures Rock is strongle silicified by chalcedony and quartz. Pumice vesicles filled by chalcedony and quartz.

Kspar crystals are not altered or silicified but appear to have been partially dissolved and the resulting vugs filled with drusy quartz (or dissolution of included glass ?)

Opaques/mineralization

Other stain for Kspar - very weak positive stain in matrix (potassium rich glass ?)

Specimen number V41A

Locality Nash project, Vernon, B.C.

Rock Name crystal-lithic ash-lapilli tuff

Alteration type silicic

Thin section quality good

Date 11-13-89

Petrographer lmnk - mem

Hand sample/rock description Gray to maroon gray weathering, pinkish to pale maroon gray crystal-lithic lapilli tuff. Lithic clasts comprise >75% of rock, range to >7cm and are predominately buff to pink maroon, olive and gray silicified vitrophyric and microporphyritic volcanic rocks. Feldspar clasts (to 3.5cm) moderately abundant, biotite clasts (to 1mm) common locally. Moderately porous, small vugs filled with drusy quartz and locally with limonite and/or hematite. Fine grained groundmass appears to be completely silicified. Tuff cut locally by veinlets 1-2mm wide filled with limonite and/or hematite; FeO_x flood adjacent wallrock outward 1-1.5cm.

Microscopic description

	Primary					Alteration				
	%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
	12	sanidine				31	chal-cedony			granular, pervasive replacement of clasts, feldspar
original	3	ortho-clase	.05-1.5	anh-sub	broken & non-brkn, partially altered to	10	quartz	.05-.1	anh→eu	as a cement, drusy xls in vugs, drusy xls around grains, ~~rarely w/ chaldy~~
(84)	40	lithic clasts	1-10	sub-ang to rnd	partially altered to	tr	sericite	<.01	anh	weak alteration of feldspar
	1	biotite	.05-.5	anh	stained with lim	1	opaques	.01-.05	anh→eu	euhedra have square x-sxn, abdnt in lithic clasts, orthoclase, biotite
	tr	zircon	.05	sub	unaltered, in clasts	2	limonite hematite	<.01	anh	disseminated in lithic clasts, kspar, biotite, rimmed grains, filled vugs in drusy qtz

Primary textures

Lithic clasts: listed in order of decreasing abundance

(a) * granular chaldy/qtz ± sanidine ± biotite

(c) * radial aggregates of crystallites and/or chalcedony and quartz ± sanidine ± biotite

(b) * flow banded

(e) * pumiceous

(f) * Kspar phenos with felted groundmass of kpar ± biotite, abdnt FeO_x

Alteration textures Rock consists of sanidine, ortho., ~~biotite, and lithic~~ clasts cemented by quartz and ~~drusy quartz~~ in the interstices between grains. Approximately 5% of rock is vugs. Lithic clasts are totally to partially replaced by chalcedony with rare intergrown quartz. Sanidine are partially replaced by quartz.

Opaques/mineralization

Other Stained for Kspar - ~~Many of the clasts have~~ Kspar crystals, crystallites, or potassium rich glass

Specimen number V43

Locality Nash project, Vernon, B.C.

Rock Name silicified crystal-lithic-vitric lapilli-ash tuff

Alteration type silicic

Thin section quality plucked

Date 11-13-89

Petrographer lmnk -mem

Hand sample/rock description White to buff or orange brown weathering, buff white to maroonish white intensely silicified lithic-crystal lapilli-ash tuff with later fracturing and brecciation. Cut by complex system of vein breccia cemented by reddish brown to maroon "jasperoidal" chert and finely crystalline quartz. Lithic clasts comprise 35% of tuff, most are 1cm and are predominantly flow banded vitric tuff or welded tuff. Small irregular vugs are locally abundant and are lined with fine drusy quartz.

Microscopic description

Primary					Alteration				
%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
2 8	orthoclase sanidine	.2-2.0	anh-sub	abdnt broken xls, partially altered to	25	chalcedony			granular, replacement of matrix & lithic clasts, flooded
( )original (60) 10	matrix			mostly silicified, some non-birefrigent	37	quartz	.01-.1	anh-eu	intergrown with (rexl from chalcedony, 10% of rock is qtz veinlet w/ cockscomb to anh qtz. Some veinlets still open w/ drusy qtz. Qtz filled vugs & vesicles
(30) 15	lithic clasts	.1-1.0	sub-rnd	partially silicified by chalcedony/qtz					
tr	biotite	.2	anh	unaltered except for limonite stain	1	hematite	<.01	anh	disseminated in lithic clasts, matrix, define ~~flow bands, rimmed grains~~ and vein edges
tr	amphibole	.5	anh-sub	pseudomorph defined by opaque outline	1	limonite	<.01	anh	FeO_x cut by qtz vnlts
tr	zircon	.05	sub	unaltered	1	black opaques	<.01-.02	anh	

Primary textures

Flow bands, pumice, and glass shards preserved in matrix (somewhat hard to determine if pumice/shards are in matrix or in clasts because of silicification

Lithic clasts: listed in order of decreasing abundance

(b)* flow banded ± sanidine ± biotite

(a)* granular chaldy/qtz ± sanidine ± biotite

(f)* felted Kspar groundmass, hematite-rich

Alteration textures Rock is moderately silicified by replacement and flooding of matrix and clasts by chalcedony and quartz. Two stages of silicification 1) finer grained chaldy/qtz replacement/flooding of matrix & clasts 2) veins and vug filling by quartz. Veins grade into quartz flooding of matrix.

Clast/matrix contacts hard to distinguish because of silicification.

Opaques/mineralization

Other stain for Kspar - moderate positive stain in matrix and clasts

Specimen number V44

Locality Nash project, Vernon, B.C.

Rock Name trachytic lithic-crystal lapilli-ash tuff

Alteration type silicic

Thin section quality plucked in places

Date 11-13-89

Petrographer lmnk-mem

Hand sample/rock description Maroon weathering maroon to pinkish or brownish maroon brecciated lithic-crystal tuff with local crystal-lithic tuff breccia. Lithic clasts mostly silicified vitrophyric and microporphyritic volcanic rocks (most trachytic ?), with some earlier generation lithic tuff. Feldspar clasts (to 5mm) very abundant. Lithic lcasts, tuff matrix, some crystal clasts, and breccia matrix flooded with finely disseminated hematite/and or limonite; breccia matrix also flooded by chalcedony and fine grained quartz and is especially enriched in FeO_x. Small vugs lined with fine drusy quartz. Tuff and brecciated tuff cut by quartz veinlets.

Microscopic description

	Primary					Alteration				
	%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
	1	quartz	.2-.4	anh	broken xls with qtz overgrowths	25	chal-cedony			granular replacement and flooding of matrix and clasts
( ) original	5 / 35	orthoclase / sanidine	.5-2.	anh-sub	sub xls & abdnt broken xls	20	quartz	.01-.05	anh→ eu	intergrown with (rexl from) chalcedony, drusy xls in vugs, rare veinlets
(20)	10	lithic clasts	.5-1.5	sub-rnd	partially silicified	tr	sericite	.01	anh	weak alteration of feldspar
(30)		matrix			silicified	2	hematite	.01-.05	anh	disseminated in matrix,
	tr	biotite	.1	sub	unaltered except for limonite stain	1	limonite	<.01	anh	clasts, filled vugs in matrix and veinlets
	tr	mafic mineral	.2-.5	anh	pseudomorph defined by opaque rim, silicified	1	black-brown opaques	.01-.05	anh	

tr zircon

Primary textures
Lithic clasts: listed in order of decreasing abundance
(a)* granular chaldy/qtz ± sanidine
(d)* spherultic crystallites(?) ± chalcedony
(c)* radial aggregate of chalcedony (appears to be a clast rather than a vug filling)
(f)* hematite-rich clasts

Alteration textures Three episodes of silicification of matrix/clasts 1) pervasive replacement by chalcedony/quartz 2) flooding of matrix by finer grained chalcedony, fronts cut xls & matrix 3) rock cut by quartz veinlets, veinlets cut FeO_x
Drusy qtz rimmed clasts and lined vugs. Vugs found in matrix and by possible dissolution of clasts of Kspar.

Opaques/mineralization

Other

Specimen number V45

Locality Nash project, Vernon, B.C.

Rock Name silicified trachyte(?) crystal-lithic ash-lapilli tuff

Alteration type silicic

Thin section quality good

Date 11-15-89

Petrographer lmnk - mem

Hand sample/rock description Maroonish gray weathering, orange gray to maroonish gray silicified crystal-lithic lapilli tuff. Lithic clasts comprise >50% of rock, ranges to several cms and are predominantly varicolored (pink, buff, gray, olive, and maroon) silicified vitrophyric and microporphyritic volcanics(?). Feldspar clasts moderately abundant to locally very abundant. Fine grained matrix appears to be completely silicified. Very porous rock; vugs gernerally comprise >10% of total volume and are lined with drusy quartz and/or FeO_x.

Microscopic description

	Primary					Alteration				
	%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
original %	(5)	matrix			totally replaced by →	35	chal-cedony			granular replacement of possible matrix & abdnt clasts, fibrous radial aggregates lined vugs
	8 12	orthoclase sanidine	.4-2.	anh-sub	weakly altered to qtz, opaques, abndt broken xls	33	quartz	.01-.05	anh-eu	with chaldy as a replacement in clasts, half of qtz is a cement
(65)	10	lithic clasts	1-5 3-4 avg	sub-rnd	partially to totally silicified	tr	sericite	<.01	anh	weak alteration of Kspar
	tr	biotite	.4	sub	unaltered	1	black opaques	.01	anh	disseminated in clasts, filled vugs in drusy quartz
	tr	amphi-bole(?)	.5	sub	outline defined by opaques, interior plucked	1	hematite limonite	.01	anh	
	tr	zircon								

Primary textures Similar to V41A
Lithic clasts: listed in order of decreasing abundance
(a) *granular qtz/chaldy ± sanidine ± biotite
(b) *flow banded ± sanidine
(h) *patchy chaldy ± sanidine
(c) *fibrous aggregates of chaldy/crystallites ± sanidine ± biotite
(i) *perlitic
(e) *pumiceous
(l) *one granitic clast

Alteration textures Rock consists of lithic clasts* mineral grains with a small amount of possible matrix cemented by quartz. Rock is 20% vugs lined with drusy quartz cement. Matrix is totally silicified by chalcedony/qtz. Clasts are partially to totally silicified.

Opaques/mineralization

Other ~~stained for Kspar.~~ orthoclase and some clasts stained positive for Kspar.

Specimen number V46

Locality Nash project, Vernon, B.C.

Rock Name oxidized porphyritic trachyte

Alteration type weak phyllic

Thin section quality good

Date 11-15-89

Petrographer lmnk - mem

Hand sample/rock description Pale grey brown weathering gray porphyritic trachyte(?) with abundant Kspar phenocrysts (two generations: most 3-8mm and most< 2mm) and minor strongly altered amphibole and pyroxene(?) phenocrysts (most< 2mm). Intensely oxidized along fractures (limonite introduced). Cut by numerous veinlets (some to several mms wide); most quartz filled or lined with coxcomb quartz, some layered: FeO_x-chalcedony-coxcomb quartz-drusy quartz.

Microscopic description

	Primary					Alteration				
	%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
phenocrysts	25 5	sanidine orthoclase	.02-5.0	sub-eu	partially altered to	10	quartz/chaldy	.01-.25	anh-sub	one 2-3mm banded qtz vein, replaced Kspar phenos, filled rare vugs
	1	amphibole + pyx(?)	.2-.3	anh-sub	definite amphibole and possible pyx(?) pseudomorphs of FeO.	2	sericite & qtz	.01	anh	weak alteration of orthoclase phenocrysts
Groundmass	40	Kspar	<.01-.02	sub	random orientation felted texture	tr	kaolinite	<.01	anh	alteration of cores of orthoclase phenocrysts
	tr	apatite	.01-.02	eu	in groundmass, as inclusions in kspar in vein qtz	5	limonite	.01	anh	disseminated in gm, replac phenocrysts, as bands in qtz veins
	9	opaques	<.01-.01	anh	equant to rod shaped random orientation oxidized in places to limonite	2	opaques	<.05-.1	sub-eu	euhedra have square x-sxn, disseminated in groundmass and phenocrysts-

Primary textures Porphyritic with phenocrysts of sanidine, -orthoclase, amphibole and pyx pseudomorphs. Groundmass consists of microlites of Kspar (stained positive for Kspar) and opaques. Orthoclase phenocrysts (or xenocrysts) typically are larger (to >5.0mm vs. generally <2.5mm) and more sericitically altered than sanidine, and commonly are weakly fractured and weakly resorbed locally. Sanidine phenocrysts are typically euhedral, and blocky to elongate microphenocrysts (<0.5mm) are abundant, as are microlites (<0.03mm long). Orthoclase apparently crystallized earlier in the melt at depth (higher P) or reflects a xenocrystal source.

Alteration textures Orthoclase phenocrysts are moderately altered to sericite, kaolinite, quartz, and limonite. Sanidine crystals are unaltered or exhibit only minor sericitic alteration. Rod shaped to prismatic FeO_x's apparently are after amphibole crystals (< 0.03mm) in groundmass.

Specimen number V47

Locality Nash project, Vernon, B.C.

Rock Name silicified crystal-lithic ash-lapilli tuff

Alteration type silicic

Thin section quality approximately 20% of slide is plucked (feldspar sites?0

Date 11-16-89

Petrographer lmnk - mem

Hand sample/rock description Strongly altered, pale maroon to pale pink weathering, pale maroon to pale purple crystal-lithic lapilli tuff with large numbers of both crystal and lithic clasts weathered out generating a very porous rock. Lithic clasts apparently were mostly fine grained microporphyritic to vitrophyric volcanics but are extensively altered and definitive identifications are difficult. A few clasts of feldspar and biotite have survived, but these also show appreciable alteration. Some more ash rich phases are present in outcrop.

Microscopic description

original %	Primary %	Mineral	Size (mm)	xl form	Comments	Alteration %	Mineral	Size (mm)	xl form	Comments
(20)	1	feldspar	.5-3.0	anh-sub	plucked areas, totally altered to chaldy/qtz/sericite	40	chalcedony		granular with rare radial aggregates, replaced matrix, clasts, feldspar, rare vnlts	
(60)	20	lithic clasts	.2-10.	sub-rnd	partially to totally altered to chaldy/qtz/sericite	20	quartz	.01-.02	anh	intergrown with (rexl from) chalcedony
(39)	10	matrix			partially altered to chaldy/qtz/sericite	2	sericite	<.01	anh	alteration of feldspar xls, disseminated in matrix
	tr	biotite	.2-.5	anh	altered to and stained by limonite	6	opaques	<.01-.02	anh	opaques are brown under plane, disseminated in chaldy/qtz, replaced
	tr	zircon	.05	anh	in matrix	1	limonite	.01-.02	anh	clasts, rimmed clasts, abundant in matrix

Primary textures

Lithic clasts: listed in order of decreasing abundance

(a) *granular qtz/chaldy
(h) *patchy chaldy/crystallites ± amphibole
(b) *flow banded
(e) *pumice
(d) *spherulitic
(f) *hematite-rich w/ eu fldsp in gm
(f) *hematite-rick w/ bio, fldsp

Alteration textures Clasts and matrix partially to totally silicified by chalcedony and quartz. Most of the feldspar have been plucked. The remainder of the feldspar are altered to sericite and then altered to chalcedony/quartz.

Two stages of silicification in matrix/clasts
1) chalcedony/quartz with abundant opaques
2) chalcedony/quartz with rare opaques. Flooding grades into veinlets

Opaques/mineralization

Other stained for Kspar - some clasts and some of matrix stained positive for Kspar

Specimen number V49A

Locality Nash project, Vernon, B.C.

Rock Name silicified trachyte(?) crystal-lithic ash-lapilli tuff

Alteration type silicic

Thin section quality

Date 11-9-89

Petrographer lmrk - mem

Hand sample/rock description Buff to orange brown weathering , olive gray to pale maroon to greenish gray crystal-lithic tuff with abundant Kspar clasts in groundmass. Lithic clasts comprise > 50% or rock, range to several cms, and are predominantly maroon to gray and buff, silicified microporphyritic and vitrophyric volcanics. Fine grained matrix appears to be completely silicified. Rock is cut by abundant veinlets (most < 5mm) and microveinlets (~ 0.1mm) of microcrystalline quartz and/or chalcedony; some wider veinlets exhibit zonation from finely laminated chalcedony to microcrystalline or drusy quartz.

Microscopic description

)original %	Primary					Alteration				
	%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
(30)	5 15	orthoclase sanidine	.1-1.5	anh-sub	partially altered to qtz, chaldy, sericite, calcite	25	chalcedony			abundant granular, colloform, and radial aggregates, pervasive and veinlet
(60)	30	lithic clasts	2-15	sub-rnd	partially to totally altered to qtz/chaldy	22	quartz	.01-.2	anh	granular and jigsaw, pervasive and veinlet
(10)		matrix			replaced and flooded by qtz/chaldy	1	hematite limonite	<.01	anh	disseminated in clasts, replaced matrix
	tr	biotite	.2-.5	sub	in matrix & clasts, stained by hematite	1	opaques	.1-.2	anh→ eu	commonly dissem. in clasts matrix, euhedra have square x-sxn, black in plane light
	tr	plagioclase	one xl .1	anh	unaltered	tr	calcite	.02	anh	weak alteration of Kspar
	tr	zircon	.1-.5	sub-eu	in matrix, inclusions in orthoclase, black rim	tr	sericite	.01	anh	weak alteration of Kspar
						1	opaques	.01		brown in plane light and disseminated in clasts

Primary textures

Matrix may have some pumiceous and flow banded texture although hard to distinguish between clasts/matrix because of silicification.

Lithic clasts: listed in order of decreasing abundance

(a) * chalcdeony/qtz ± sanidine (granular) ± biotite

(d) * spherulitic ± sanidine

(h) * patchy-radial crystallites/chalcedony ± sanidine ± amphibole

(b) * flow banded

(i) * perlitic

(f) * Kspar phenos w/ kspar microlite gm, hematite rich

Alteration textures Approximately half of the lithic clasts are partially to totally silicified (replaced and flooded) by chalcedony and quartz. The matrix is totally replaced and flooded by chalcedony and quartz. Clasts and silicified matrix are cut by quartz/chalcedony veinlets. The relatively abundant veinlets are banded in places with colloform chalcedony.

Opaques/mineralization

Other

Specimen number V50

Locality Nash project, Vernon, B.C.

Rock Name silicified trachytic(?) crystal-lithic ash-lapilli tuff

Alteration type silicic

Thin section quality centers of feldspar plucked

Date 11-16-89

Petrographer lmnk - mem

Hand sample/rock description Buff to buff white to pale orange brown weathering, pale orange gray to buff crystal-lithic tuff with abundant Kspar clasts. Lithic clasts comprise >50% of the rock, range to several cms., and are predominantly gray to olive, green and buff, silicified microporphyritic and vitrophyric volcanics. Fine grained matrix appears to be completely silicified. Minor vugs filled with chalcedony and/or drusy quartz. Cot by microveinlets (most <1mm) of finely crystalline quartz; some cockscomb quartz and drusy quartz present where open.

Microscopic description

Primary					Alteration				
%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
					39	chalcedony			granular, replacement of matrix, clasts
24 6	sanidine orthoclase	.1-1.5	anh-sub	abdnt broken xls, weakly altered to sericite, qtz, lim	13	quartz	.01-.2	anh→ eu	intergrown with (rexl from chalcedony, drusy euhedra in vugs/vesicles
tr	biotite	.1	sub	totally altered to limonite	tr	sericite	.01	anh	weak alteration of Kspar
original (20) 5	matrix			partially to totally silicified	2	limonite	<.01	anh	disseminated in silica replacement of matrix/clasts, rimmed grains, filled vugs, rare pseudos of xls with square x-sxn
(50) 10	lithic clasts	.5-10.0		partially to totally silicified					
tr	zircon				2	opaques	<.01		brown under plane, disseminated in matrix, clasts.

Primary textures of clasts preserved-
(b)* flow banded ± sanidine, granular chaldy/qtz
(a)* granular chaldy/qtz + orthoclase
(e)* pumiceous, now chaldy/qtz
(f)* felted fldsp with limonite

listed in order of decreasing abundance

Alteration textures Matrix and lithic clasts have been silicified by chalcedony and quartz. Two textures of chalcedony/quartz:
1) intergrown chalcedony/quartz with abundant opaques and limonite
2) intergrown chalcedony/quartz with rare opaques and limonite, coarser grains of chalcedony and crystals of quartz. Qtz chalcedony.
Number 2) texture does not appear to be a second stage of silicification but a rexl or late flooding of the initial silicifcation.
Clasts have a range of grain size and texture, probably a function of primary textures.
Rock is ≈1% vugs and vesicles (in pumice) filled with drusy quartz.

Other stained for Kspar- some clasts and matrix stained positive for Kspar

Specimen number V51A

Locality Nash project, Vernon, B.C.

Rock Name veined, silicified trachytic(?) crystal-lithic ash-lapilli tuff

Alteration type silicic

Thin section quality centers of feldspar plucked

Date 11-20-89

Petrographer lmnk -mem

Hand sample/rock description Similar to sample V50 but more intensely veined and flooded by chalcedony and microcrystalline quartz.

Microscopic description

%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments

Primary textures

Alteration textures Basically the same rock as V50 but V51A has a greater amount of type 2 late chalcedony/quartz (30-35% cf. 13% in V50). The textures in V51A indicate the type 2 chaldy/qtz appears to be a flooding which grades into veinlets which cut type 1) chalcedony/qtz.

V51A has 5% vugs/vesicles lined with drusy quartz.

Opaques/mineralization

Other

Specimen number V52A

Locality Nash project, Vernon, B.C.

Rock Name silicified vitric(?)-crystal-lithic ash-lapilli tuff

Alteration type silicic

Thin section quality

Date 11-20-89

Petrographer lmnk - mem

Hand sample/rock description Pale pinkish brown to orange brown weathering, pinkish buff to olive gray crystal-lithic to ash-lapilli tuff and tuff breccia. Lithic clasts comprise >50% of rock (>80% locally), range to >30cm and are predominantly pink, buff, gray, and olive, porphyritic, microporphyritic and vitrophyric volcanic rocks that are variably silicified. Porphyritic trachyte is moderately abundant, and porphyritic andesite is common locally. Kspar and biotite clasts are common but not abundant. Fined grained matrix appears to be completely silicified. Highly porous locally due to removal of weathered clasts and irregular (continued at bottom of page)

Microscopic description

Primary %	Mineral	Size (mm)	xl form	Comments	Alteration %	Mineral	Size (mm)	xl form	Comments
4	orthoclase	.2-.5	anh-sub	broken xls sub xls partially replaced by qtz & chalcedony	32	chalcedony (late)			granular, fine grained replaced and flooded matrix, rare veinlets
ginal 6	sanidine	anh	.2	broken	30	chalcedony			granular and radial aggregates, replaced gm/matrix
1	biotite	anh	.05-.2	partially stained by FeO_x, replaced by qtz	tr	opaques	<.01		brown in plane, dissem in clasts and matrix
(44)	matrix			silicified matrix not replaced by late chalcedony approx. 5% of rock	1	limonite	<.01	anh	disseminated in clasts, biotite
					1	hematite	.02-.03	anh	pseudomorphs after an isometric mineral, dissem as single xls mainly in late chalcedony and rarely in clasts
(50) 25	lithic clasts	.5-8.	sub-rnd	partially silicified	5	quartz	.01-.05	anh-eu	filled vugs around clasts, drusy xls
tr	zircon	anh	.05	unaltered					

Primary textures

Lithic clasts: listed in order of decreasing abundance

(d) * spherulitic sanidine biotite
(a) * granular chalcedony sanidine
(e) * pumice
(b) * clast(?) of banded chalcedony

Alteration textures Clasts, matrix, and crystals have been partially to totally replaced by chalcedony/qtz.

Two episodes of silicification identifiable in the matrix 1) replacement by granular and radial aggregates of chalcedony and vugs filled by quartz 2) replacement and flooding by finer grained chalcedony. Flooding grades into rare veinlets of finer grained chalcedony.

Opaques/mineralization

Hand sample (continued)

zones of matrix. Vugs filled or lined by chalcedony, "jasperoidal" chalcedony and/or microcrystalline quartz. Minor veinlets similarly filled and, where open, may contain late stage drusy quartz.

Other

Specimen number V53

Locality Nash project, Vernon, B.C.

Rock Name intensely silicified crystal-lithic-vitric(?) lapilli-ash tuff

Alteration type silicic

Thin section quality centers of feldspar plucked

Date 11-10-89

Petrographer lmnk

Hand sample/rock description Pale gray weathering, gray, intensely silicified crystal-lithic tuff(?). Clasts all < 5mm and most too silicified to identify. Some crystals of Kspar and biotite recognized.

Microscopic description

Primary					Alteration				
%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
1	ortho-clase	.2-2.0	anh-sub	partially replaced by qtz/chaldy	40	chal-cedony			granular, radial aggregates
tr	biotite	.2-.4	sub	altered to limonite	45	quartz	.01-.2	anh→ eu	granular to elongated, rexl from & intergrown wit chalcedony, euhedra in vug
9	sanidine	1.0	sub	unaltered	1	opaques	< .01		brown under plane, disseminated in chaldy/qtz, abndt in radial aggregates
(50) 2	matrix			spherulitic, partially altered to	1	opaques	.01-.1	anh→ eu	black under plane, euhedra have square outlines, disseminated in chaldy/qtz
(40)	lithic clasts			entirely replaced by chalcedony and qtz with exception of sanidine phenos	1	limonite	<.01	anh	disseminated in chaldy/qtz, filled vugs
tr	zircon			unaltered					

Primary textures Possible spherulitic texture in matrix defined by brown opaques. Most lithic clasts too silicified to identify. Contacts gradational with silicified tuff matrix rendering estimate of clast % very difficult.

(a) * granular chalcedony and quartz ± sanidine ± biotite

Alteration textures Kspar crystals are partially replaced by qtz/chaldy. Rock is very strongly silicified and most primary textures of the martix/groundmass were destroyed.

Opaques/mineralization

Other

Specimen number V54

Locality Nash project, Vernon, B.C.

Rock Name silicified trachytic(?) crystal-vitric ash tuff

Alteration type silicic

Thin section quality feldspar are partially to totally plucked

Date 11-28-89

Petrographer lmnk - mem

Hand sample/rock description Pale gray to gray white weathering, pale orange gray silicified crystal-vitric ash tuff. May contain lithic clasts, but if so, degree of silicification of entire rock has obliterated their outlines. Feldspar clasts are abundant (some rimmed) and many are partially replaced by qtz?

Microscopic description

	Primary					Alteration				
	%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
pheno-crysts	2 8	orthoclase sanidine	.5-3.0	sub- eu	phenocrysts, partially altered to qtz/chaldy	18	quartz	.01-.05	anh	polyxl aggregates found as lenses and patches in groundmass
	tr	biotite	.5-.1	sub	totally altered to hematite	30	chalcedony			granular replacement and flooding of gm & xl clasts very fine grained, rare vnlts
	tr	amphibole	.3	sub	outline and cleavage defined by limonite, interior plucked	1	limonite hematite	<.01	anh	disseminated in xl clasts gm, chaldy/qtz, mafics
						1	opaques	.02	sub	black under plane, some grains nearly square in x-sxn, disseminated in gm, qtz, chalcedony
	40	groundmass	.01		crystallites, some radial aggregates, felted					
	tr	zircon	.2	anh	unaltered					

Primary textures Crystal clasts of sanidine, orthoclase, biotite, and amphibole pseudomorphs. Groundmass consists of crystallites. Crystallites stained positive for Kspar. Lithic clasts may be present, but if so, intensity of silicification has oblitered their character and contacts.

Alteration textures Kspar clasts are partially replaced by quartz and chalcedony and rarely cut but chalcedony veinlets. The groundmass is flooded by quartz and chalcedony The quartz appears to be earlier and is flooded disaggregated, and cut by the chalcedony flooding.

Opaques/mineralization

Other

Specimen number V57A

Locality Nash project, Vernon, B.C.

Rock Name intensely silicified trachytic(?) vitric-lithic-crystal lapilli-ash tuff

Alteration type silicic

Thin section quality feldspar are plucked

Date 11-29-89

Petrographer lmnk

Hand sample/rock description Pale gray weathering, pale grey to whitish gray intensely silicified and sericitized(?) lithic-crystal and crystal-lithic, lapilli-ash and ash-lapilli tuff. Lithic clasts comprise from 25-40% of rock, range to several cms., and appear to be mostly intensely altered fine grained to vitrophyric volcanics. Altered Kspar clasts are nearly equivalent in abundance but rarely exceed 6mm. Very fine grained to glassy(?) groundmass that has been completely replaced by chalcedony and microcrystalline quartz. Locally, cut by quartz veins (to 1.5cm wide)

Microscopic description

	Primary					Alteration				
original %	%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
(30)	5.	sanidine	.05-2.	eu-sub	dissolution of Kspar has left vugs w/ qtz, others partially	70	chalcedony			granular, radial aggregates replaced clasts & matrix
(30)	5	lithic clasts	.1-3.0	sub-rnd	to sericite altered to →	15	quartz	.01-.2	anh→ eu	intergrown with (rexl from) chalcedony, filled vugs, rare veinlets, drus
(40)		matrix			totally replaced by chalcedony & qtz	3	sericite	.01	anh	weak alteration of Kspar, disseminated in qtz/chalc replacement, clasts
						1	opaques	.02	anh-sub	black under plane, some nearly square x-sxns, dis in clasts, replaced matri
	tr	amphibole	.2	sub	rimmed by FeO_x, replaced by qtz	1	limonite	<.01	anh	disseminated in qtz/chalc in clasts & matrix
	tr	zircon	.1	sub	unaltered					

Primary textures Most of the Kspar have been dissolved and filled by quartz or partially filled by drusy quartz. Many Kspar sites are plucked. A small amount of Kspar are weakly altered to sericite.
The matrix is totally silicified and has abundant relict glass shards and pumiceous texture.
Lithic clasts: listed in order of decreasing abundance
(d) *spherulitic sanidine, abundant
(b) *flow banded, rare

Alteration textures Matrix and most of the clasts are totally silicified by chalcedony/quartz and are lightly dusted by sericite. Cockscomb qtz veinlets cut silicified matrix and clasts. Drusy qtz lined vugs formed largely by the dissolution of Kspar.

Opaques/mineralization

Other stained for Kspar - some clasts stained positive

Specimen number V58A

Locality Nash project, Vernon, B.C.

Rock Name silicified trachyte(?) crystal-vitric-lithic ash-lapilli tuff

Alteration type silicic

Thin section quality feldspar are partially plucked

Date 11-30-89

Petrographer lmnk- mem

Hand sample/rock description Gray to whit weathering, gray to gray white crystal-lithic ash-lapilli tuff flooded with pale gray chalcedony and cut locally by quartz veins, some with abundant limonite/hematite. Lithic fragments comprise up to 50% of rock, range to several cms., and are predominantly porphyritic to micro-porphyritic aphanitic or vitrophyric volcanics. Kspar clasts (to 6mm) are relatively abundant (to 25% locally), and the fine grained to glassy matrix (up to 45% of rock locally) appears to be extensively replaced by silica.

Microscopic description

	Primary					Alteration				
	%	Mineral	Size (mm)	xl form	Comments	%	Mineral	Size (mm)	xl form	Comments
	5 15	orthoclase sanidine	.2-1.5	anh→ eu	common broken xls, partially altered to qtz/opaques	40	chal-cedony		granular flooding,	pervasive replacement, and veinlet
(40)	20	matrix		replaced partially by chalcedony		12	quartz	.01-.3	anh→ eu	filled vesicles in pumice, in veinlets as anh to eu drusy xls, rarely intergrown with (rexl from) chalcedony
(40)	5	lithic clasts	.05-5.0	sub-ang	partially to totally replaced by chaldy/qtz	2	opaques	.01-.05	anh	abdnt as disseminations in clasts, common in matrix, orthoclase
						1	hematite limonite	.01	anh	disseminated in clasts & matrix, stained drusy qtz in veinlets
	tr	zircon	.1	anh→eu	black rim, in matrix					

Primary textures Relict glass shards (now chalcedony) in matrix. Lithic clasts: listed in order of decreasing abundance.

(e) *pumice ± sanidine
(b)* flow banded ± sanidine
(f) * Sanidine phenos in felted to flow alligned Kspar microlite gm hematite-rich
(c) *Kspar crystallites ± sanidine phenocrysts, some radial aggregates to patchy

Alteration textures Most of the matrix and clasts have been pervasively silicified (replaced) by chalcedony. Kspar crystals, clasts, and matrix have been cut by a second stage of chalcedony and quartz in veinlets. The veinlets grade into flooding. Chalcedony in the veinlets is granular. Quartz ranges from drusy euhedra to anhedral xls.

Opaques/mineralization

Other ~~stained for Kspar~~ ~~weak positive stain in matrix,~~ matix and crystallites in some clasts stained positive

EXPLANATION

UNITS

Q	GLACIAL, COLLUVIAL AND ALLUVIAL DEPOSITS
Tr	PORPHYRITIC RHYOLITE - gray to white, with small phenocrysts of quartz, sanidine, oligoclase and cristobalite, in a fine-grained felsic groundmass; well developed flow layering, lamellae average 2mm and apparently reflect alterating glass-rich layers; occurs as a flow overlying trachytic(?) tuffs in a paleochannel cut in a sequence of basalt, trachyandesite and trachyte flows.
Tlt Tlts Tltw	LAPILLI TUFF - predominantly gray to gray white, buff, olive and pale orange brown, trachytic(?) crystal-lithic ash-lapilli tuff, with locally abundant crystal and/or glass, ash-rich varieties or lithic tuff breccia. Lithic clasts mostly microporphyritic to vitrophyric volcanics; crystal clasts dominantly sanidine and orthoclase with minor biotite, plagioclase, pyroxene, amphibole and quartz Tlts - intensely silicified: characterized by extensive flooding and replacement by chalcedony and/or microcrystalline quartz; silica filled vugs and veins abundant, commonly layered from early chalcedony to cockscomb quartz to drusy quartz; some veins and vugs contain late stage goethite/limonite/hematite. Tltw - intensely weathered; characterized by abundant clay, silica and poor consolidation.
Tltb	LITHIC TUFF BRECCIA - pale pink to buff, pale orange brown and olive gray, coarse, lithic clast-rich tuff with abundant fragments and blocks (to > 30 cm) of microporphyritic and vitrophyre volcanic rocks, and local porphyritic andesitic and trachytic varieties; groundmass same as Tlt.
Tat Tats Tatw	LAPILLI-ASH TUFF - predominantly pale gray to pink, white and pale green, fine grained, trachytic(?) crystal-vitric and vitric-crystal lapilli-ash and ash tuff with local ash-lapilli tuff; some phases enriched in lithic clasts of microporphyritic and vitrophyre volcanics, but these generally are small (< a few mm) and rarely exceed 30%. Crystal clasts mostly sanidine, orthoclase, and minor biotite; glass (generally devitrified) commonly abundant in groundmass. Tats - intensely silicified: characterized by extensive flooding and replacement by chalcedony and/or microcrystalline quartz; silica filled veins and vugs locally abundant. Tatw - intensely weathered: characterized by abundant clay and silica; generally poorly consolidated and granular.

Tlt / Tat — LAPILLI TUFF AND LAPILLI-ASH TUFF UNDIVIDED

Ttb — TALUS BRECCIA - dark gray to gray white, coarse breccia along northwest margin of paleochannel at interface of channel wall basalt and rhyolite flow in channel. Angular fragments (to 1 m) of fine grained basalt/andesite predominate, but clasts of trachytic(?) tuff and rhyolite increase in abundance toward contact with adjacent rhyolite flow. Matrix appears to be tuffaceous material similar to that composing nearby Lapilli-Ash Tuff unit (Tat).

Td — DACITE(?) - buff to gray, fine grained porphyritic rock with abundant small phenocrysts (< 2 mm) of plagioclase, K-feldspar and quartz, with minor biotite, and slightly larger phenocrysts (2-3 mm) of altered amphibole(?). Areal extent very limited, possibly a small flow or plug.

Tb / Tba — BASALT/ANDESITE - flows, agglomerates, and flow front breccias. Predominantly pale gray to dark gray or olive gray, aphanitic basalt and/or andesite with minor small phenocrysts (< 2 mm) of pyroxene; flow banding prominent locally, generally platy with well developed joints. Interbedded with intensely oxidized, bright red, Fe-oxide cemented, coarse agglomerate. Underlying basalt/andesite flow typically amydaloidal and generally also oxidized to pale maroon or red; immediately overlying flows also generally oxidized. Coarse, blocky, variably altered flow front breccia present locally.

Tba - predominantly oxidized agglomeratic sequences.

Ta — PORPHYRITIC TRACHYANDESITE AND TRACHYTE - interbedded flows. Pale gray to olive gray, gray brown and maroon brown weathering, gray to dark gray and, locally buff to maroon, strongly porphyritic with aphanitic groundmass. Trachyandesite typically more abundant; characterized by plagioclase and pyroxene phenocrysts and groundmass of plagioclase and K-feldspar microlites. Trachyte generally lighter colored and characterized by abundant sanidine phenocrysts and groundmass microlites.

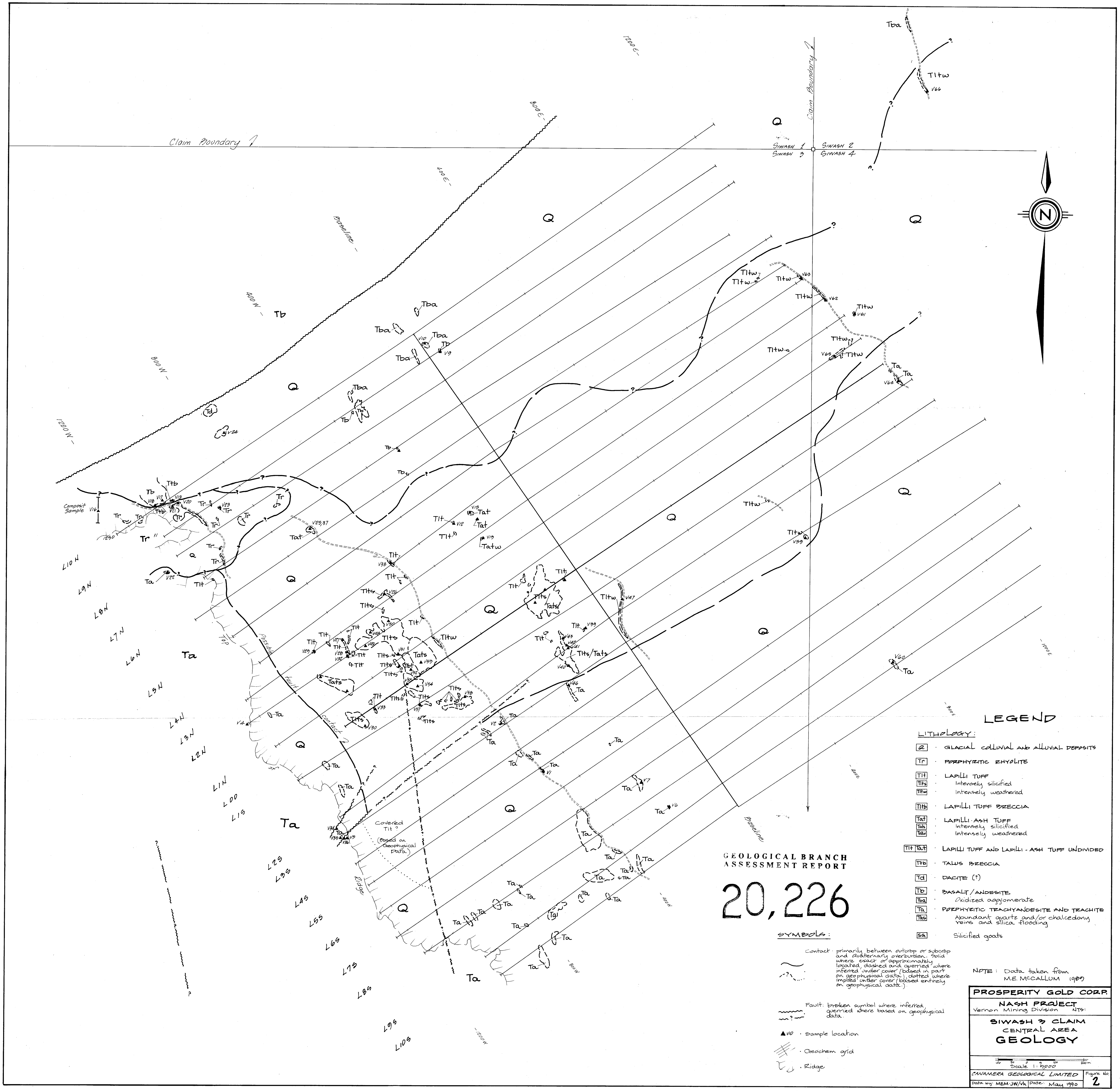
Tas - abundant quartz and/or chalcedony veins and silica flooding.

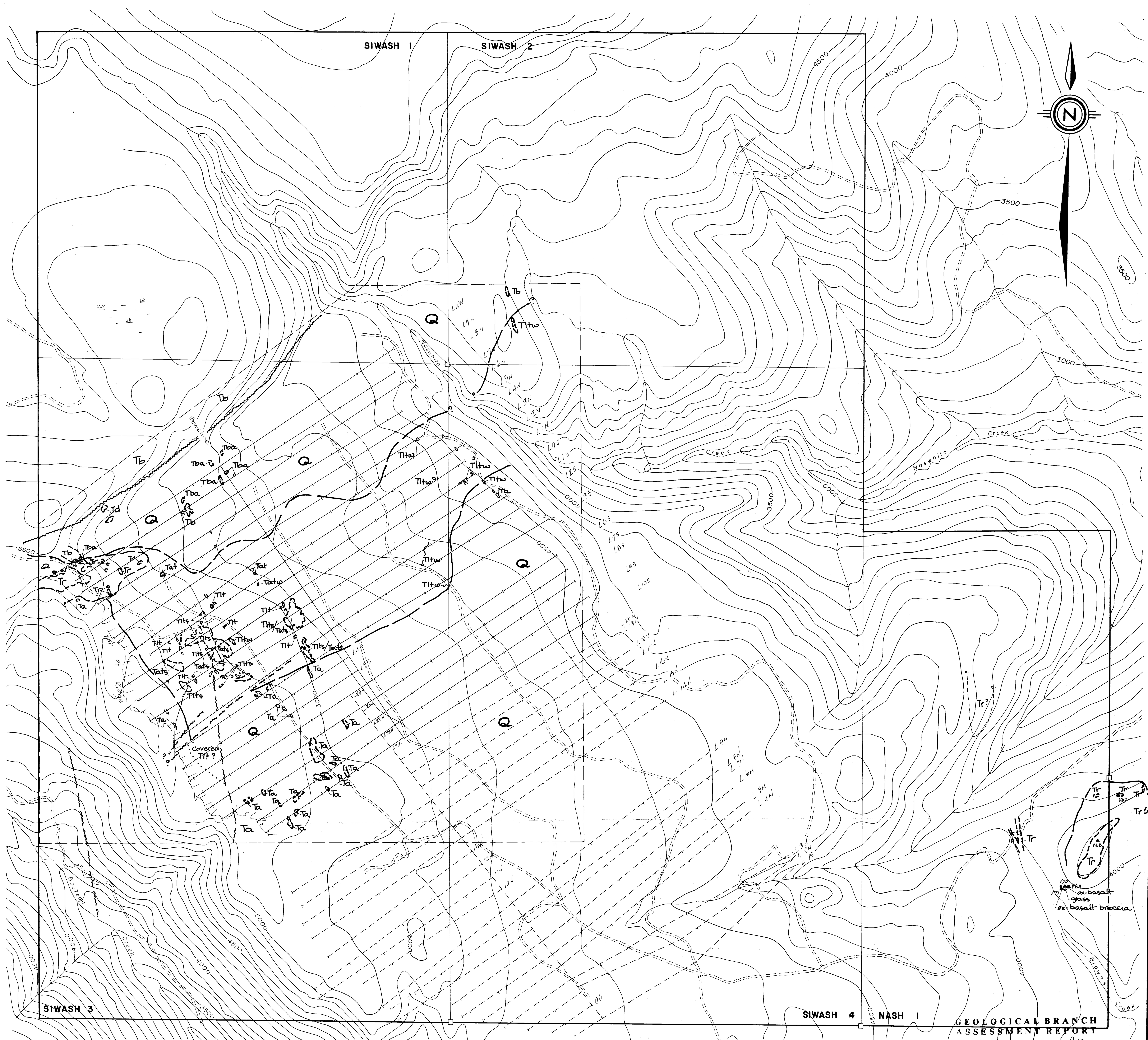
MAP SYMBOLS

CONTACT; primarily between outcrop or subcrop and Quaternary overburden. Solid where exact or approximately located, dashed and querried where inferred under cover (based in part on geophysical data), dotted where implied under cover (based entirely on geophysical data).

FAULT; broken symbol where inferred, querried where based on geophysical data.

△ V10 — SAMPLE LOCATION


Claim Boundary ?
Claim Boundary ?
SIWASH 1
SIWASH 2
SIWASH 3
SIWASH 4
Baseline
Possible Fault Contact ?
Covered Tlt ? (Based on Geophysical Data)
Composit Sample
N
GEOLOGICAL BRANCH
ASSESSMENT REPORT
20,226
LEGEND
LITHOLOGY:
Q · GLACIAL COLLUVIAL AND ALLUVIAL DEPOSITS
Tr · PORPHYRITIC RHYOLITE
Tlt · LAPILLI TUFF
Tlts · Intensely silicified
Tltw · Intensely weathered
Tltb · LAPILLI TUFF BRECCIA
Tat · LAPILLI-ASH TUFF
Tats · Intensely silicified
Tatw · Intensely weathered
Tlt Tat · LAPILLI TUFF AND LAPILLI-ASH TUFF UNDIVIDED
Ttb · TALUS BRECCIA
Td · DACITE (?)
Tb · BASALT / ANDESITE
Tba · Oxidized agglomerate
Ta · PORPHYRITIC TRACHYANDESITE AND TRACHITE
Tas · Abundant quartz and/or chalcedony veins and silica flooding
SG · Silicified goats
SYMBOLS:
Contact: primarily between outcrop or subcrop and Quaternary overburden. Solid where exact or approximately located, dashed and querried where inferred under cover (based in part on geophysical data), dotted where implied under cover (based entirely on geophysical data.)
Fault: broken symbol where inferred querried where based on geophysical data.
▲V10 · Sample location
· Geochem grid
· Ridge
NOTE: Data taken from M.E. McCALLUM 1989
PROSPERITY GOLD CORP.
NASH PROJECT
Vernon Mining Division NTS:
SIWASH 3 CLAIM
CENTRAL AREA
GEOLOGY
Scale 1:5000
CANAMERA GEOLOGICAL LIMITED
Figure No. 2
Data by: MEM·JW/vh
Date: May 1990



~ LEGEND ~

LITHOLOGY

- Q · GLACIAL COLLUVIAL and ALLUVIAL DEPOSITS
- Tr · PORPHYRITIC RHYOLITE
- Tlt · LAPILLI TUFF
  - Tlts · Intensely silicified
  - Tltw · Intensely weathered
- Tltb · LAPILLI TUFF BRECCIA
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  - Tats · Intensely silicified
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- Ttb · TALUS BRECCIA
- Td · DACITE (?)
- Tb · BASALT / ANDESITE
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- Ta · PORPHYRITIC TRACHYANDESITE AND TRACHITE
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SYMBOLS:

Contact: primarily between outcrop or subcrop and Quaternary overburden. Solid where exact or approximately located, dashed and querried where inferred under cover (based in part on geophysical data), dotted where implied under cover (based entirely on geophysical data).

Fault: broken symbol where inferred, querried where based on geophysical data

▲V10 · Sample location

· Geochem grid

· Ridge

NOTE · Data taken from M.E. McCALLUM 1990

PROSPERITY GOLD CORP.

NASH PROJECT
Vernon Mining District NTS:

SIWASH 3 CLAIM

GENERAL GEOLOGY

200 100 0 200 400m
Scale 1 : 10,000

CANAMERA GEOLOGICAL LTD.

Data by: MEM JW/vh

Date: May 1990

Figure No. 1