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**GEOLOGICAL AND GEOPHYSICAL REMOTE
SENSING ASSESSMENT REPORT**

on the
TAM and MAY CLAIM GROUPS
(HA 1 to HA 10, TAM 94-1 & 94-3, HAM 2, 51 and 52)
(HA HA 1 & 2, MAY 1 TO 23)

located in the
OMINECA MINING DIVISION, B.C.
56° 00' N, 125° 30' W
N.T.S. 93N/13E, 14W and 94C/3W, 4E

owned by:

MAJOR GENERAL RESOURCES LTD.
Suite 1550, 409 Granville St.
Vancouver, B.C. V6C 1T2

by:

K.V. CAMPBELL, Ph.D., P.Geo., F.G.A.C.

MINERAL SURVEY BRANCH
VICTORIA, B.C.

25,062

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1. Introduction

This report describes the results of a remote sensing study of **Major General Resources Ltd.**'s Tam property located in the Omineca Mining Division of north-central British Columbia. The objective of the study was to identify geological structures through the analysis and interpretation of Landsat TM multispectral data. In conjunction with the study of satellite imagery a compilation and review of geophysical data, both airborne and ground surveys, was made to determine if the understanding of the structural geology of property could be improved upon.

A major part of the current work involved color imaging of geophysical and satellite data. Assessment report requirements precluded incorporation of color reproductions and grayscale renditions only are included in copies of the report submitted to the government.

1.1. Location and Access

The Tam property is located in north central British Columbia, approximately 56 kilometres northwest of the town of Germansen Landing between the Osilinka and Omineca Rivers (Figure 1). The claim block straddles the boundaries of NTS map sheets 93N/13E, 14W and 94C/3W, 4E and lies entirely within the Omineca Mining Division.

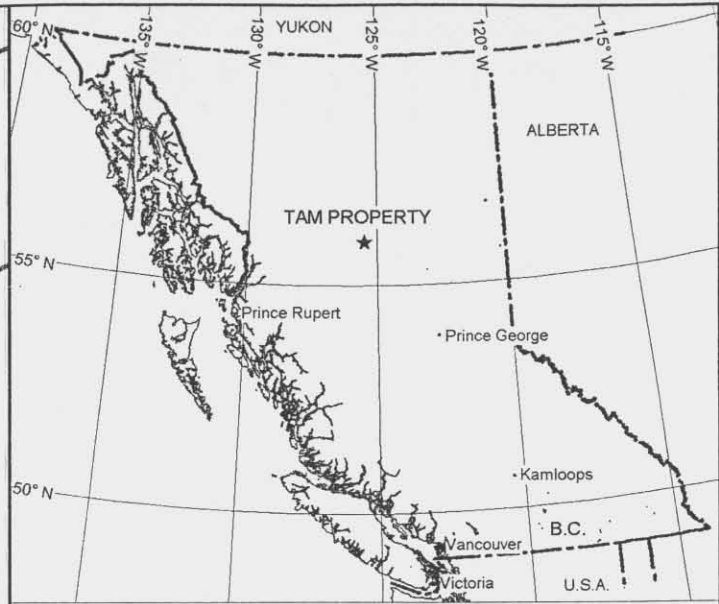
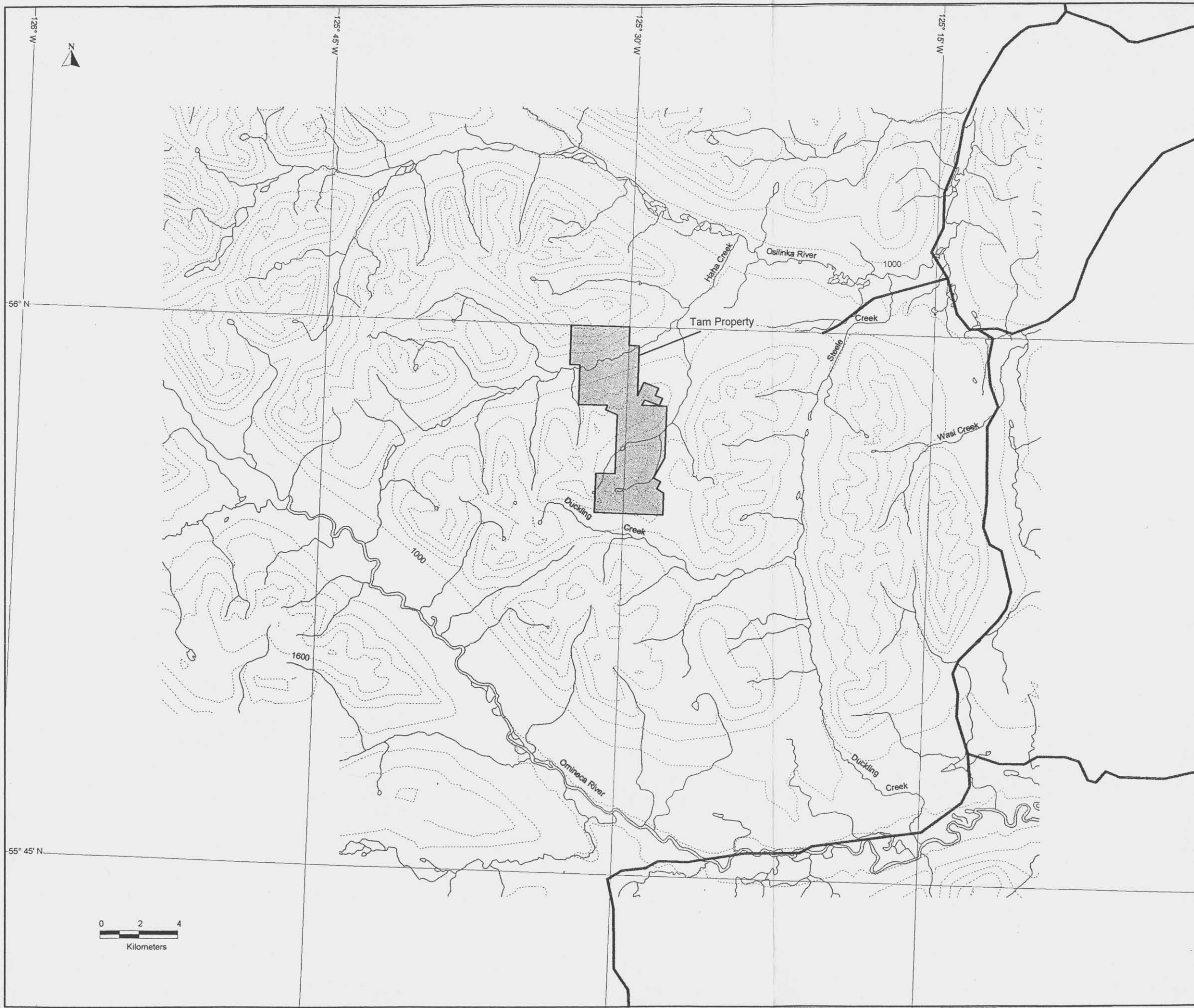
The nearest access in 1991 was via float plane from Uslika Lake, or by road from Fort St. James to the Osilinka River and from there via helicopter. Alternatively, one can fly with a helicopter from either Fort St. James or Smithers. An old cat road accessed the claims from the four-wheel-drive road that services the Lorraine property located 8 km to the southeast, but it is not passable now. A logging road still 12 km distant in 1991 was projected to pass through the property; it is not known if this has been completed.

1.2. Physiography and Vegetation

Elevations on the property range from 1025 metres A.S.L. in the valley of Haha Creek to 1800 metres A.S.L. on the peaks to the north and south. Slopes are moderate at lower elevations and covered by mature timber. At higher elevations the tree cover becomes scrubby before giving way to alpine shrubs and grasses. Steep walled cirques are common above 1600 metres elevation, and the snowpack lasts until the end of June at higher levels.

1.3. Claim Status

The complete Tam property consists of 4, 20 unit modified grid claims and 48, 1 post, 1 unit claims for a total of 128 contiguous claim units which are 100% wholly owned by **Major General Resources Ltd.** The work described in this assessment report has been applied to 116 of 128 claim units. These 116 claim units comprise two claim groups, Tam and May, as indicated in Table 1. Figure 2 is a claim plan of the property.



----- approximate topographic contours
200m interval

NTS 93N, 94C

MAJOR GENERAL RESOURCES LTD.

TAM PROPERTY, B.C.

OMINECA MINING DIVISION

LOCATION MAP

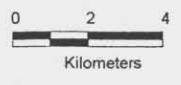
Project: 97-260

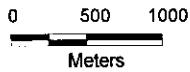
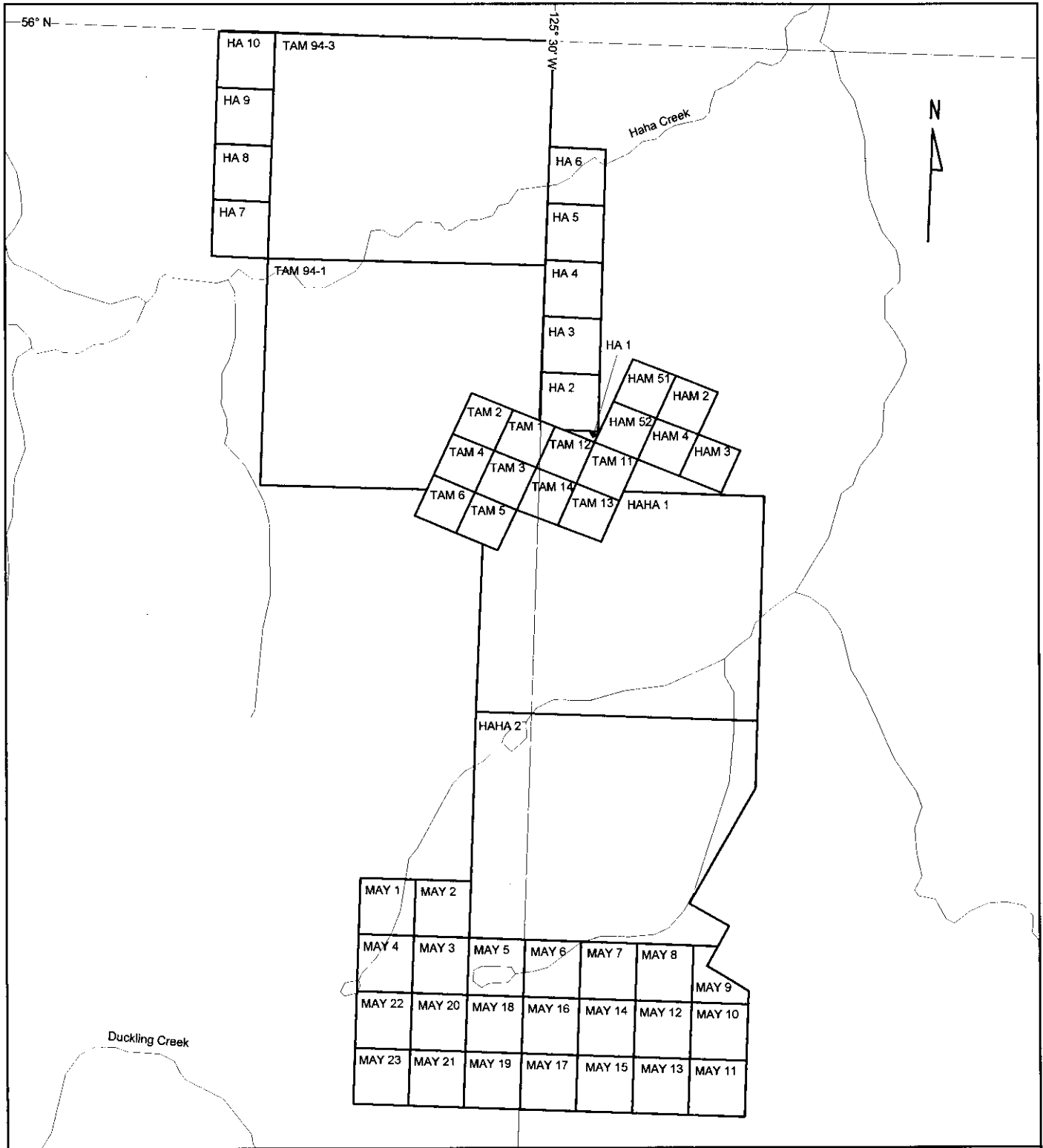
Date: June, 1997

Scale: 1:200,000

Figure: 1

ERSI Earth Resource Surveys Inc.





NTS 93N/13,14 94C/3,4

MAJOR GENERAL RESOURCES LTD.

TAM PROPERTY, B.C.

OMINECA MINING DIVISION

CLAIM PLAN

Project: 97-260

Date: June, 1997

Scale: 1:50,000

Figure: 2

ERSI Earth Resource Surveys Inc.

Table 1. Summary of claim particulars for the complete Tam property.

Group	Claim	Claim Number	Size (ha)	Claim Units	Anniversary Date	Expiry date
	TAM #1	244866	20.90	1	25-Aug-69	25-Aug-99
	TAM #2	244867	20.90	1	25-Aug-69	25-Aug-99
	TAM 3	244868	20.90	1	25-Aug-69	25-Aug-98
	TAM 4	244869	20.90	1	25-Aug-69	25-Aug-98
	TAM 5	244870	20.90	1	25-Aug-69	25-Aug-98
	TAM 6	244871	20.90	1	25-Aug-69	25-Aug-98
	TAM 11	244872	20.90	1	25-Aug-69	25-Aug-98
	TAM 12	244873	20.90	1	25-Aug-69	25-Aug-98
	TAM 13	244874	20.90	1	25-Aug-69	25-Aug-98
	TAM 14	244875	20.90	1	25-Aug-69	25-Aug-98
Tam	TAM 94-1	326549	418.00	20	21-Jun-94	21-Jun-97
Tam	TAM 94-3	326548	418.00	20	21-Jun-94	21-Jun-97
Tam	HA 1	326560	20.90	1	21-Jun-94	21-Jun-97
Tam	HA 2	326561	20.90	1	21-Jun-94	21-Jun-97
Tam	HA 3	326562	20.90	1	21-Jun-94	21-Jun-97
Tam	HA 4	326563	20.90	1	21-Jun-94	21-Jun-97
Tam	HA 5	326564	20.90	1	21-Jun-94	21-Jun-97
Tam	HA 6	326565	20.90	1	21-Jun-94	21-Jun-97
Tam	HA 7	326566	20.90	1	21-Jun-94	21-Jun-97
Tam	HA 8	326567	20.90	1	21-Jun-94	21-Jun-97
Tam	HA 9	326568	20.90	1	21-Jun-94	21-Jun-97
Tam	HA 10	326569	20.90	1	21-Jun-94	21-Jun-97
Tam	HAM #2	245544	20.90	1	04-Aug-72	04-Aug-97
	HAM #3	245545	20.90	1	04-Aug-72	04-Aug-99
	HAM #4	245546	20.90	1	04-Aug-72	04-Aug-98
Tam	HAM #51	245553	20.90	1	04-Aug-72	04-Aug-97
Tam	HAM #52	245554	20.90	1	04-Aug-72	04-Aug-97
May	HAHA 1	345753	418.00	20	08-May-96	08-May-97
May	HAHA 2	345754	418.00	20	09-May-96	09-May-97
May	MAY 1	345755	20.90	1	09-May-96	09-May-97
May	MAY 2	345756	20.90	1	09-May-96	09-May-97
May	MAY 3	345757	20.90	1	09-May-96	09-May-97
May	MAY 4	345758	20.90	1	09-May-96	09-May-97
May	MAY 5	345759	20.90	1	09-May-96	09-May-97
May	MAY 6	345760	20.90	1	09-May-96	09-May-97
May	MAY 7	345761	20.90	1	09-May-96	09-May-97
May	MAY 8	345762	20.90	1	09-May-96	09-May-97
May	MAY 9	345763	20.90	1	09-May-96	09-May-97
May	MAY 10	345764	20.90	1	09-May-96	09-May-97
May	MAY 11	345765	20.90	1	09-May-96	09-May-97
May	MAY 12	345766	20.90	1	09-May-96	09-May-97
May	MAY 13	345767	20.90	1	09-May-96	09-May-97
May	MAY 14	345768	20.90	1	09-May-96	09-May-97
May	MAY 15	345769	20.90	1	09-May-96	09-May-97
May	MAY 16	345770	20.90	1	09-May-96	09-May-97
May	MAY 17	345771	20.90	1	09-May-96	09-May-97
May	MAY 18	345772	20.90	1	09-May-96	09-May-97
May	MAY 19	345773	20.90	1	09-May-96	09-May-97
May	MAY 20	345774	20.90	1	09-May-96	09-May-97
May	MAY 21	345775	20.90	1	09-May-96	09-May-97
May	MAY 22	345776	20.90	1	09-May-96	09-May-97
May	MAY 23	345777	20.90	1	09-May-96	09-May-97

2675.20 128 (116)

(bold face indicates claims of the Tam and May Groups to which the current assessment work is applied.)

1.4. History

Most of the following summary is from a report by J. Chapman (1990).

The original showing on the property was discovered during the late 1940's when reconnaissance exploration conducted by Kennco Explorations (Western) Ltd. uncovered copper mineralization along a north facing cirque wall overlooking the Haha Creek valley. Recent exploration commenced on the Tam property in 1969 with the staking of the original Tam claims. During the period 1969 - 1972, reconnaissance exploration was carried out by Dolmage Campbell and Associates on behalf of UMEX. This work was directed at evaluating the Hogem Batholith and the Duckling Creek Syenite Complex in search for porphyry type deposits. A large block of ground covering the northern quarter of the Duckling Creek Syenite Complex was staked as a result of these programs and an aeromagnetic survey (Figure 3) was flown. The new claims were mapped, prospected and soil and stream sediments were sampled to various degrees. Numerous small copper showings and prospects were located as a result of this work; however, aside from the Tam project, none received any significant follow-up work.

In 1973 UMEX assumed direct control of the program and concentrated on evaluating the Tam property, which at that time consisted of the Tam and Ham claims. About \$35,000 was spent on exploring the rest of the complex outside of the Tam property between 1973 and 1976.

Five diamond drill holes totalling 762 metres were located under Dolmage Campbell and Associates' direction. Drill logs were not available to the subsequent author(s) but a summary report for 1973 cites (*in* Chapman, 1990) two drill hole intercepts averaging 0.31% copper over 60 feet and 0.64% copper over 20 feet.

A soil sampling program on the Jo Ann claims, situated on the southeast border of the Tam property, defined a large copper anomaly. UMEX optioned this property in 1973.

The 1973 exploration program included staking additional Tam claims to cover the projected northwesterly extension of the mineralization encountered on the Tam and Ham claims. Trenching and diamond drilling programs were done on the Tam and surrounding Ham claims. Drilling amounted to 4 holes totalling 183.8 metres: TR-73-1 and -2 on the Boundary showing; JA-73-1 and -2 on the Jo Ann claims. The Jo Ann claims were no longer part of the property in 1990.



Work in 1974 was focused on the Boundary and Midway showings, consisting of drilling, induced polarization and magnetic surveys, soil sampling, geologic mapping and trenching. In addition, 68 peripheral claims were staked and received varying degrees of reconnaissance exploration before being allowed to lapse. Thirteen holes totalling 2184.1 metres were drilled, most on the Boundary and Midway showings and one each on the Slide and Fault showings.

Additional soil sampling, geologic mapping, induced polarization and magnetic surveying and diamond drilling was performed in 1975. Most of the work was directed at the Rem claims in the area northwest of the Boundary deposit. A grid was established and surveyed over the Rem 17-41, 68, 70 and 72 claims. Two holes were drilled (T-75-16, -17) to test targets on the grid and two holes were located to test the northwest extension of the Boundary deposit. No significant mineralization was encountered in any of these holes.

A soil sampling survey was performed in 1976 on the ND claims which were staked northwest of the Slide showing. Values were generally low with a maximum of 511 ppm copper being obtained. The claims were allowed to lapse.

By the time UMEX abandoned the property, the Boundary deposit had a drill indicated resource of 7.2 million tons grading 0.55% copper and 0.12 oz/ton silver. Umex located five copper showings other than Boundary, but only limited follow up work was done on these and only sporadic gold assays were done.



-  Tam Property
-  Aeromagnetic Survey

NTS 93N, 94C

MAJOR GENERAL RESOURCES LTD.

TAM PROPERTY, B.C.

OMINECA MINING DIVISION

LOCATION OF 1970
AEROMAGNETIC SURVEY
(Dolmage Campbell & Associates Ltd.)

Project: 97-260	Date: June, 1997	Scale: 1:200,000	Figure: 3
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ERSI Earth Resource Surveys Inc.

Major General Resources Ltd. subsequently acquired the claims and in 1990 optioned the property to Varitech Resources Ltd. Most of the work that company did in 1990 and 1991 was carried out on two grids that were largely coincidental with grids used by UMEX in the early 1970's.

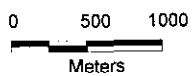
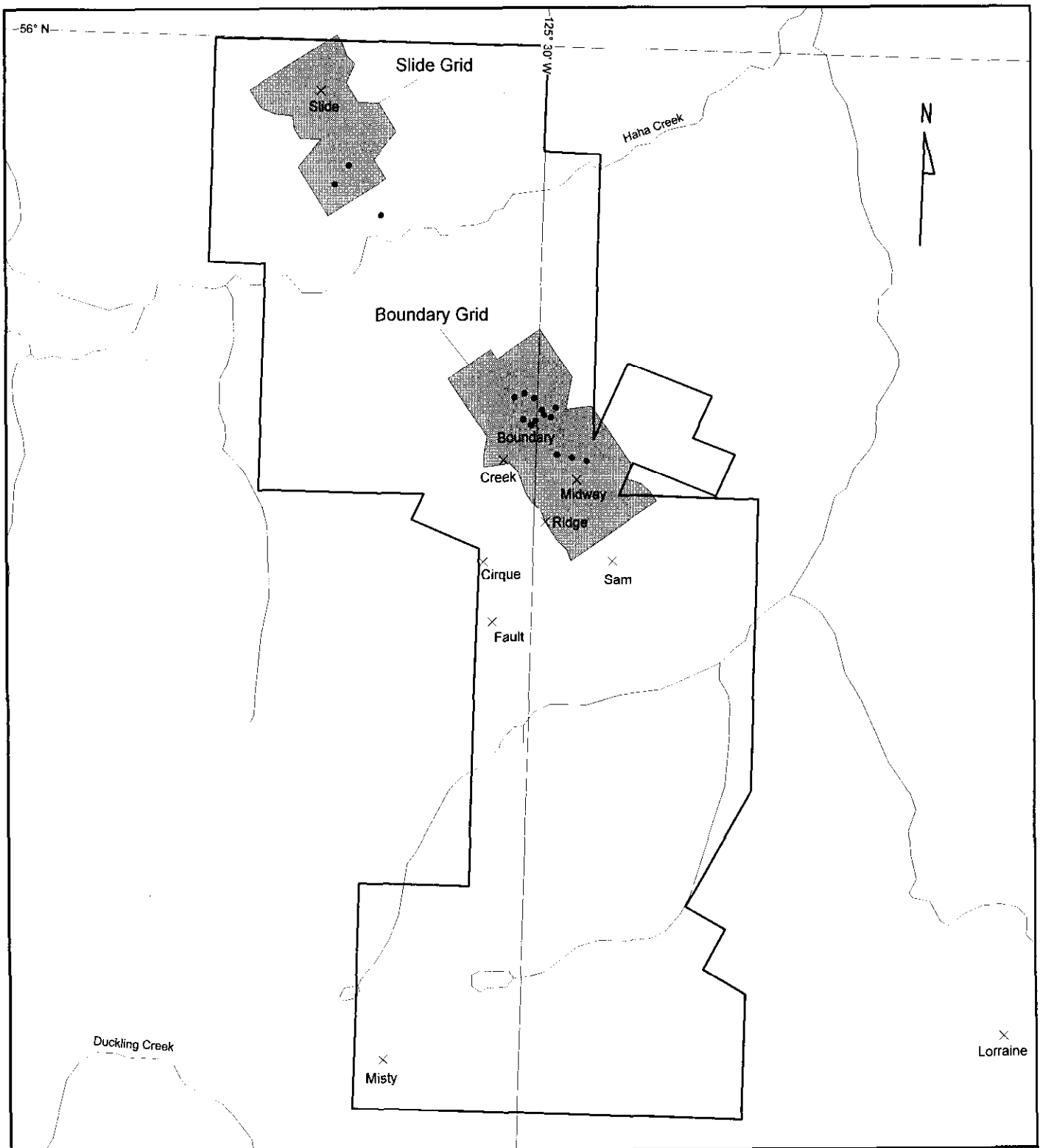
The Boundary grid work program consisted of 15 km of line cutting, 505 soil samples and 69 rock chip samples collected and analyzed for Ag, Au, As, Cu, Mo and Zn, 2 square km of geology mapped at 1:2500 scale, and induced polarization, magnetic and VLF-EM surveys run over 17 line-km.

The Slide grid work program consisted of 11.6 km of line cutting, 228 soil and 44 rock chip samples collected and sampled, as above, 1.1 square km of geology mapped at 1:2500 scale, and 9.2 km of induced polarization, 10.7 km of magnetic and 5.2 km of VLF-EM surveys run.




In addition, 277 core samples from old UMEX drill holes were sampled and analyzed for copper and gold. Twenty-six soil and silt and twenty-five rock samples were collected from the Tam 90 claim as part of a 90 square km prospecting program.

Further geochemical sampling was performed on the Haha, Rem and Tam claims in 1991. A total of 304 soil, 50 silt and 85 rock samples were collected and analyzed for gold and 12 other elements by ICP. The sampling was done on two grids, the Rem grid and the Sam grid extension. Soil samples were also collected along contours from the Tam 90-1, -2, -3, -5, -6, -7, -8, -13, -14 claims.

The 1991 work by Varitech Resources is the most recent field work done on the property. Figure 4 shows the location of the principal known showings, grids and drill sites.



NTS 93N/13,14
94C/3,4

-  Exploration grid
-  drill site
-  showing

MAJOR GENERAL RESOURCES LTD.

TAM PROPERTY, B.C.

OMINECA MINING DIVISION

**LOCATION OF SURVEY GRIDS
& KNOWN SHOWINGS**

Project: 97-260	Date: June, 1997	Scale: 1:50,000	Figure: 4
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2. Regional Geology

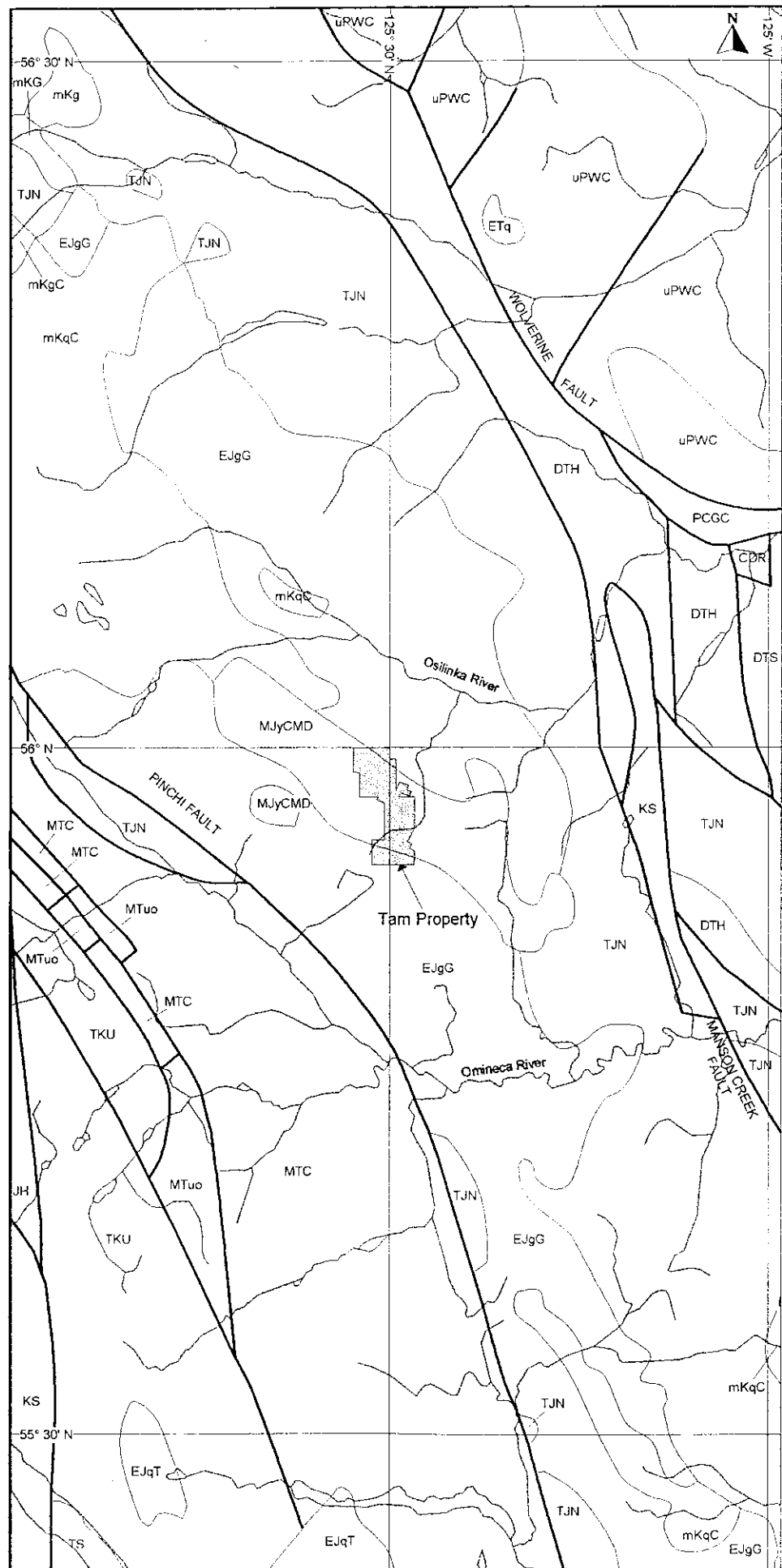
Figure 5 shows the regional geology of the area. The property is situated along the eastern margin of the Duckling Creek Syenite Complex within the Hogem Batholith, an Upper Triassic to Lower Cretaceous composite intrusion emplaced into the late Triassic Takla Group volcanics. The Hogem Batholith is an elongate, northwest trending, semiconcordant, synorogenic, composite, mesozonal plutonic complex. The Takla Group is part of the larger tectonic assemblage known as Quesnellia Terrane which host several alkaline type, gold enriched porphyry deposits.

The designation of rock units in the area is confused at best. In 1972 Garnett presented a straightforward unit description on the notes accompanying his preliminary geological map of the Duckling Creek area. This is shown in Table 2. On his map legend the Duckling Creek Syenite Complex was subdivided into three (6i, 6ii and 6iii) with a further hybrid rock unit (6A) of K-feldspar enriched monzonite.

In 1978 Garnett simplified the rock unit designation, as shown in Table 2, subdividing the southern Hogem Batholith into three rock suites: Phase I, Hogem suite of Upper-Triassic to Lower Jurassic age; Phase II, Duckling Creek Syenite Complex of Lower to Middle Jurassic age and Phase III, granites of Lower Cretaceous age. The subdivision of his 1978 Unit 6, into 6 and 6A, was not referred to.

The Hogem Batholith lies between the northwest trending Pinchi Fault zone on the west and the Manson and Wolverine Fault zones on the east. A prevalent opinion is that these faults are dextral strike slip faults although nowhere in the region are apparent displacements described, at least between latitudes 52° N and 58° N. The structural pattern intimates that a set of north-northwest trending, dextral Riedel shears and faults and a north-south trending set of extensional faults and fractures lies between the strike slip faults. There also is a less prevalent set of east-northeast trending sinistral strike slip faults, such as at Tchentlo Lake (Garnett, 1978) which could represent second order faults associated with the major dextral strike slip faults.

Between the Pinchi and Wolverine/Manson fault zones, is a mega-gash structure extending from 52° N and 58° N. The regional picture is one of strike slip faulting with associated extension accompanied by intrusive activity giving rise to a number of plutonic bodies and subvolcanic centers. The plutons appear to have been drawn out by regional wrench faults whereas the subvolcanic rocks form distinct circular structures expressed by geomorphology, geology and regional aeromagnetism.





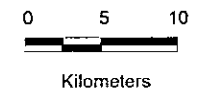
TECTONIC ASSEMBLAGES

- TERTIARY
- MESOZOIC
- CRETACEOUS
 - KS Skeena
- JURASSIC
 - JH Hazelton
- TRIASSIC
 - TJN Nicola
 - TKU Kutcho
- MESOZOIC
- PALEOZOIC
 - MTC Cache Creek
 - DTH Harper Ranch
 - DTS Slide Mountain
 - CDR Rocky Mountains
- PROTEROZOIC
 - PCGC Gog
 - uPWC Windermere

INTRUSIVES

- ETq Granite
- mKqC Cassiar
- mKgC Cascade
- mKg undivided Coast plutons
- MJyCMD Duckling Creek syenite
- EJgG Guichon
- EJqT Topley, Texas Creek plutons
- MTuo oceanic ultramathics

-  geological contact
-  fault



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TECTONIC ASSEMBLAGE MAP (from Journey & Williams, 1995)			
Project: 97-260	Date: June, 1997	Scale: 1:500,000	Figure: 5
ERSI Earth Resource Surveys Inc.			

NTS 93N, 94C

Table 2. Rock divisions of the Duckling Creek area.

Garnett (1972)				Garnett (1978)			
Age	Rock Unit	Subdivision and Variety	Unit	Intrusive Phases of Hagem Batholith	Phase Divisions	Unit	Description
Lower Jurassic to Lower Cretaceous	Hogem Batholith	Late dykes	9	Phase III Lower Cretaceous		9	leucocratic granite
		quartz monzonite	8	Phase II Middle Jurassic to Lower Jurassic	Chuchi Syenite	8	leucocratic syenite
		granodiorite	7		Duckling Creek Syenite Complex	7	leucocratic syenite
		Duckling Creek syenite complex - leucocratic intrusives - dark, hybrid K-feldspar rock, foliated - pegmatitic to aplitic dykes and stringers	6 (6i) (6ii) (6iii)			6	foliated syenite
		K-feldspar enriched hybrid monzonite	6A				
		monzodiorite-monzonite	5	Phase I Lower Jurassic to Upper Triassic	Hogem Granodiorite	5	granodiorite, quartz monzonite
		diorite	4		Hogem Basic Suite	4	monzonite
		biotite-K-feldspar pyroxenite	3			3	monzodiorite
			2	Nation Lakes plagioclase porphyry			
Upper Triassic to Lower Jurassic	Takla Group	andesitic to basaltic tuffs and breccias	2				
Age Unknown		foliated basement rocks	1				
						1	diorite

3. Property Geology

Figure 6 shows the geology of the claims area, from Gill, 1997. The rock unit designations approximate Garnett's 1972 work more than his 1978 work, and are based on both Garnett's field mapping and mapping by Varitech Resources Ltd.

3.1. Lithology

The rock units underlying the property include foliated basement rocks (Unit 1), monzodiorite (Unit 5) equivalent to Garnett's 1978 Phase I Hogem Granodiorite, syenite (Unit 6) and K-enriched monzonite (Unit 6A). Units 6 and 6A represent the Duckling Creek Syenite Complex. All of the rock units have a northwest trend of contacts and foliation.

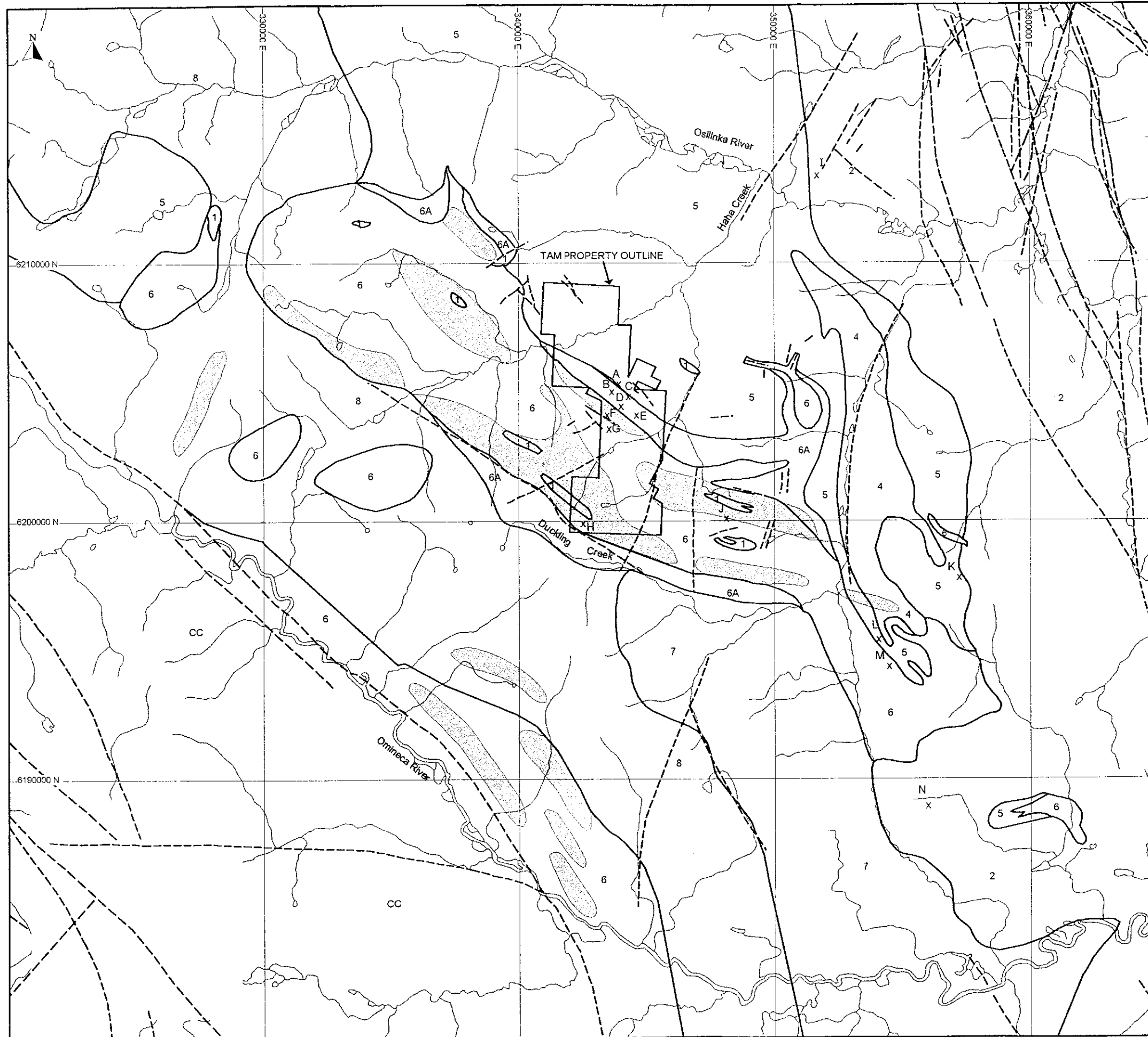
3.2. Mineralization

Table 3 summarizes the particulars of the nine principal showings on the Tam property, which are located in Figures 4 and 6. The Lorraine deposit, located along the lithological trend about 6km to the southwest of the Boundary deposit in similar rocks, contains an estimated (*in* Garnett, 1978) 4.5 million tonnes grading 0.75% Cu and 0.34ppm Au in the 'Upper Zone'. The most mineralized section within the deposit there is described in Garnett as having the following common criteria:

- occur in foliated syenitic migmatites,
- occur in mafic-rich portions of the migmatites,
- mineralization is predominantly disseminated chalcopyrite and bornite, although veinlets and fracture fillings of these primary sulphides are usually present, and
- the significant mineralization is associated with intense secondary biotite and chlorite growth, pervasive potash feldspathization, sericitization of all feldspars and the presence of accessory epidote and magnetite.

3.3. Structure

Mapped faults are shown in Figure 6. Those mapped by Garrett (1978) are mostly northeast trending cross faults. Subsequent mapping by Varitech Resources Ltd. has identified several northwest trending faults, several of which occur along rock unit contacts. Peto's 1991 description of mineralization on the claims indicates that structure has played an important role in controlling mineralization.



LEGEND

- 8 Quartz Monzonite (phase 1)
- 7 Grandiorite (phase 1)
- 6A Potassium Enriched Monzonite (phase 2)
- 6 Syenite (phase 2)
- 5 Monzodiorite (phase 1)
- 4 Diorite (phase 1)
- 2 Takla Volcanics
- 1 Foliated Basement Rocks
- CC Cache Creek Sediments

- Foliated Zones (phase 2)
- Fault

x SHOWINGS

- | | | | |
|---|----------|---|-----------|
| A | Boundary | H | Misty |
| B | Creek | I | Cat/Bet |
| C | Midway | J | Lorraine |
| D | Ridge | K | Rondah |
| E | Sam | L | Dorothy |
| F | Cirque | M | Elizabeth |
| G | Fault | N | Duckling |



MAJOR GENERAL RESOURCES LTD.			
TAM PROPERTY, B.C.			
OMINECA MINING DIVISION			
PROPERTY GEOLOGY (modified from Gill 1997)			
Project: 97-260	Date: June, 1997	Scale: As Shown	Figure: 6
ERSI Earth Resource Surveys Inc.			

NTS 93N/13,14
94C/3,4

Table 3. Summary of mineral occurrences on Tam property.

Name	Description
Boundary	Copper occurs as disseminations and fracture fillings within foliated syenites. Copper shows a positive correlation with K alteration. Reserves estimated (Dyson, 1974) to be 7.2 million tons of 0.55% Cu and 0.12 oz/ton Ag.
Midway	Disseminated chalcopyrite in dark, foliated monzonite over 8m width.
Creek	Disseminated chalcopyrite in schistose to gneissose monzonite.
Sam	Malachite and azurite stained schists and foliated syenites in a sheared area.
Cirque	Disseminated chalcopyrite in a magnetite rich, biotite syenite intruded by leucosyenite dykes.
Fault	Disseminated chalcopyrite and bornite in foliated monzonites along a northwest trending lineament.
Ridge	Malachite stained, highly fractured, schistose syenite over a 50m width; possibly a erosional remnant of a gneissic roof pendant cut by chalcopyrite bearing leucosyenite dykes.
Slide	Disseminated chalcopyrite in foliated, magnetite-rich syenite (?)
Misty	Chalcopyrite, pyrite and bornite in altered and foliated monzonite. Reserves estimated (Gill, 1997) to be 3 million tons of 0.63% Cu.

4. Review of Geophysical Data

Four magnetic survey grids were digitally processed and reviewed for the current work. These included the digital aeromagnetic coverage of the region by the GSC (Williams et al, 1996), an aeromagnetic survey by Lockwood Survey Corporation Ltd. for Dolmage Campbell & Associates Ltd. on behalf of UMEX and two ground magnetic surveys by Varitech Resources Ltd. on the Boundary and Slide grids in 1990 as described by Peto (1991). The ground surveys were done by Scott Geophysics Ltd. In addition to the ground magnetics on the Boundary and Slide grids induced polarization and VLF-EM surveys were also carried out in 1990. These results are described by Peto (1991).

The purpose of this review was to:

- examine the magnetic data for evidence of any regional structure that might be relevant to the structural geology of the Duckling Creek syenite complex, and to
- provide structural details that could be integrated with information from the satellite study.

4.1. GSC Regional Data

Figure 7 shows a portion of the regional aeromagnetics provided by the Geological Survey of Canada. The source data was the total magnetic field gridded at 200m. Also shown are predominant aeromagnetic linears and discontinuities interpreted to mark geological boundaries. Figure 7a shows the data with a simple linear stretch. Figure 7b is the same data set enhanced by a proprietary stretch which emphasizes magnetic discontinuities.

The region of relatively high positive magnetics corresponds to the belt of Nicola Group volcanic rocks and younger intrusive bodies. The Hogem Batholith is represented by the large positive area in the central northern part of Figure 7a with the irregular, partially digitated pattern on its western margin. The northwesterly elongation of the Duckling Creek Syenite and the Hogem Batholith are well expressed on the magnetic imagery. The relatively low total magnetic field areas are the Cache Creek and Mesozoic sedimentary rock units on the west and Lower Paleozoic and older sedimentary rock units on the east. The bounding structures on the central volcanic and intrusive belt, which approximates the Quesnel Trough, are clearly defined on the regional aeromagnetics. These include the Pinchi fault on the west and the Manson Creek (and related) fault(s) zones on the east side of the Quesnel Trough.

The dominant trend of linears on the regional aeromagnetics is northwest with a second set oriented north-northwest.

No bonafide circular structures are evident on this imagery. There is a poorly expressed, magnetic curvilinear centered about 10km northwest of the Tam property. It is best seen in Figure 7b. This feature, perhaps based more in the imagination than in reality, has a diameter of about 40km. It crudely correlates with topographic elements and with a few regional geological patterns.

4.2. Regional Aeromagnetic Survey

The coverage of the 1970 survey is shown in Figure 3. A printed copy of a hand contoured aeromagnetic map at a scale of 1:31,680 was digitized and transformed into NAD27 UTM Zone 10 coordinates by referencing the aeromagnetic map to orthorectified satellite imagery. This data set was then converted to both gridded XYZ and image data sets for subsequent processing.

Figure 8 is a contour plot of the data set superimposed on topography.

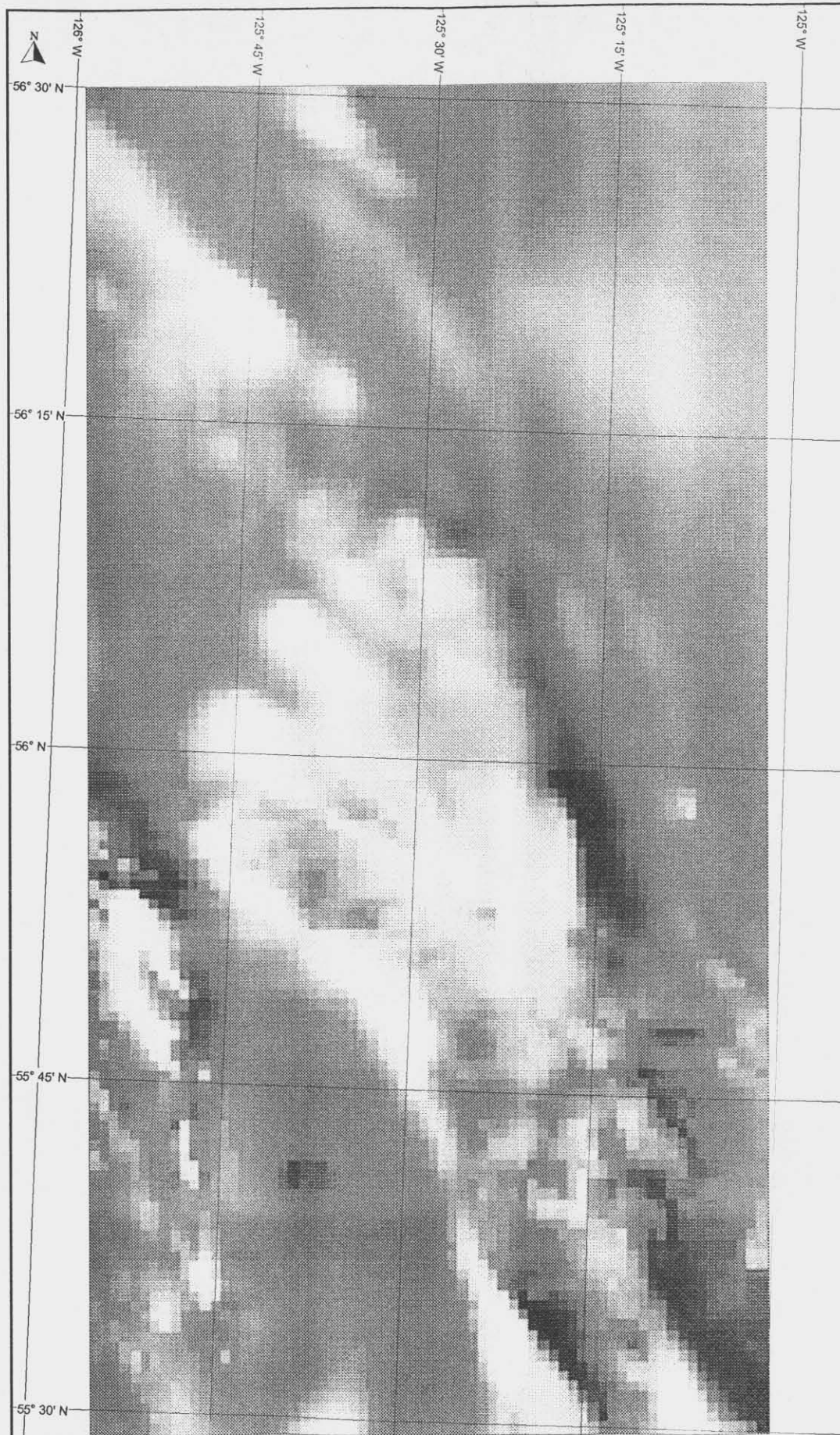


Figure 7a Total field magnetics, linear sketch

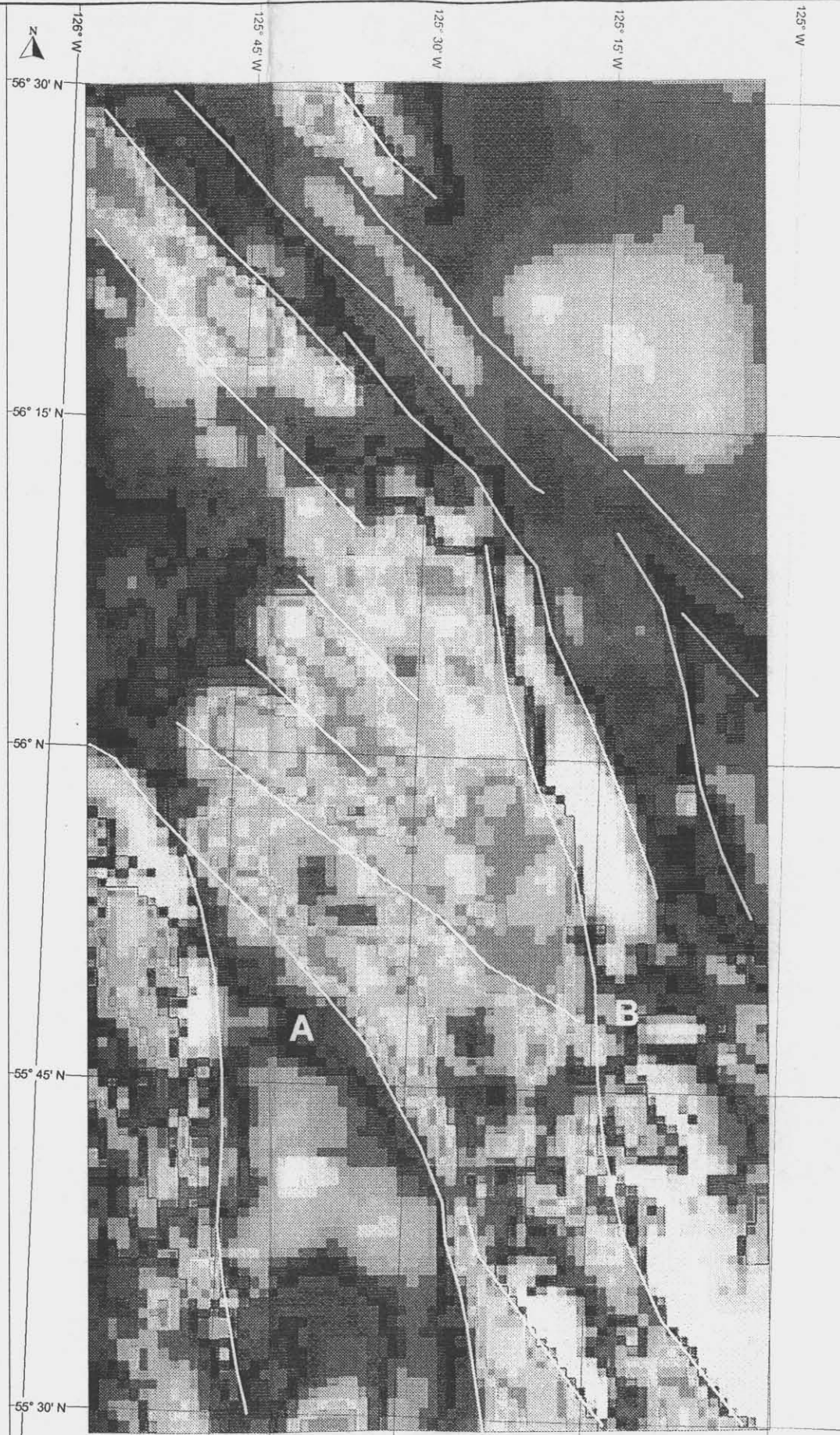
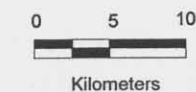


Figure 7b. Total field magnetics, edge enhancement

Regional magnetic lineaments, discontinuities and features, compiled on Figure 7b, shown by white lines.

- A - Pinchi Fault System
- B - Wolverine, Manson Creek Faults and equivalents (Swannell and Lay fault systems)



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GSC REGIONAL AEROMAGNETICS
(Williams et al, 1996)

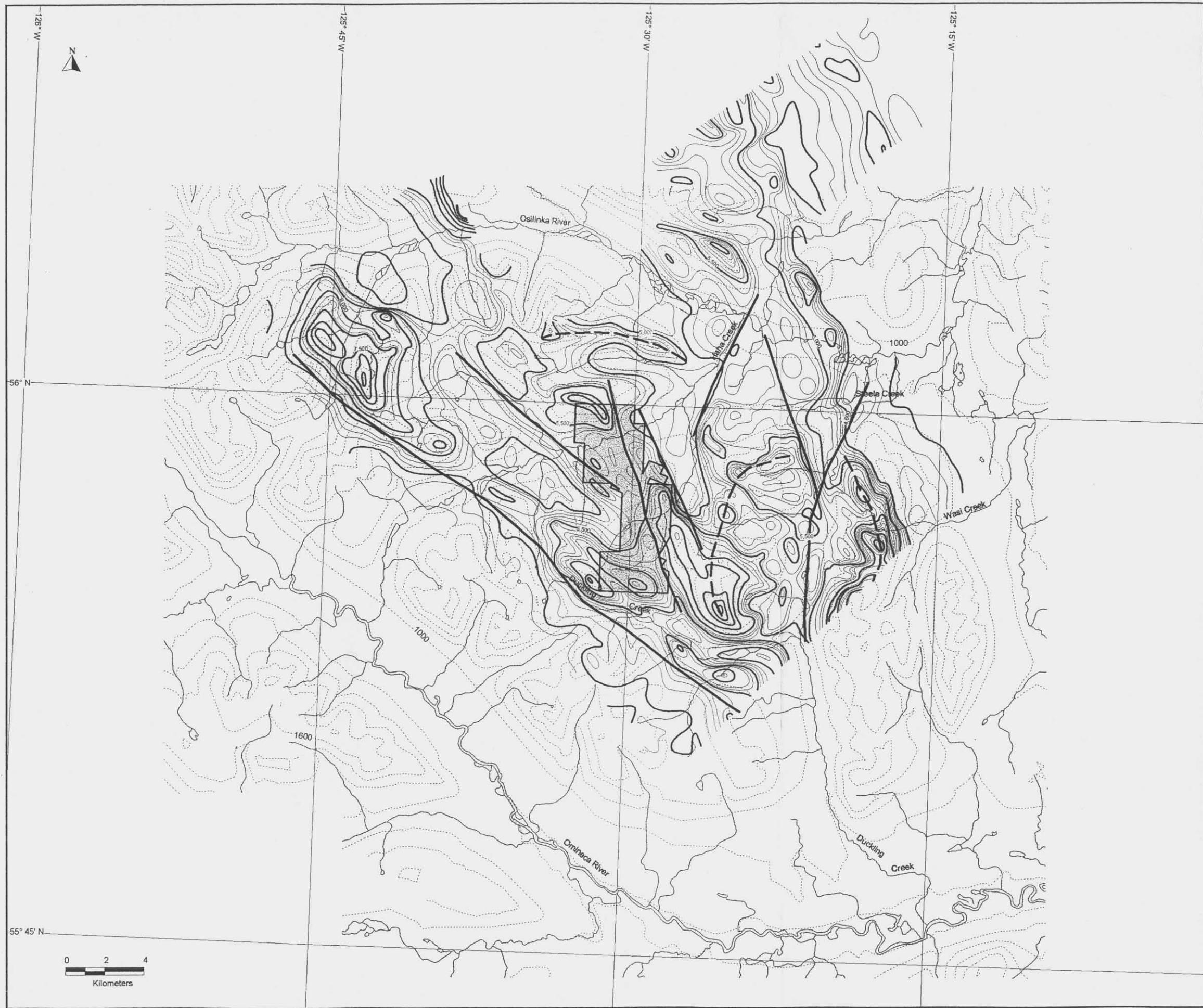
Project: 97-260

Date: June, 1997



Scale: 1:500,000


Figure: 7

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
Contours of total field magnetics

-  bold contours at 500 nT
-  100nT contours, not all shown

 curvilinear arcs of magnetic highs

 linear to curvilinear magnetic discontinuities; possible geologic contacts

 Tam property

 approximate topographic contours 200m interval

Survey by Lockwood Survey Corp. Ltd. for Dolmage Campbell & Associates Ltd. (1970).

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1970 AEROMAGNETIC SURVEY

Project: 97-260	Date: June, 1997	Scale: 1:200,000	Figure: 8
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UTM 10 NAD 27

The northwest trending magnetic highs along the southwest part of the grid, parallel to the Omineca River there, approximate the mapped extent of the Duckling Creek Syenite. To a large degree the magnetic highs correlate with topographic highs. Examples are seen in the elongated series of magnetic highs roughly coinciding with the series of interrupted ridge crests that runs along the east side of the Omineca River and along the two segmented, concave inward, ridges that lie on either side of the headwaters of Duckling and Steele Creeks. This is in the same general area of the circular magnetic feature reported by D. Mustard in an unpublished report (1996). A similar feature may be centered on the Tam property. On the north side of Haha Creek, about 4km north of the property, lies an arcuate magnetic high, not unlike those near Steele Creek. It is not as well expressed as the latter, possibly due to down faulting along the northeast trending Haha Creek.

4.3. Slide and Boundary Ground Surveys

The ground magnetic survey grids, located in Figure 4, were digitized by entering the recorded values at each local grid station into a spreadsheet and then transforming these into NAD27, UTM Zone 10. Contour plots of the two grids are shown in Figure 9. Both grids are mapped as being underlain by monzonite (Unit 5, Figure 6) and/or potassium enriched monzonite (Unit 6A, Figure 6).

The Boundary grid shows a northwest trending alignment of discontinuous magnetic highs along the northeast side of the grid. The remainder of the grid has little magnetic expression or character. The Slide grid has a number of highs with no clear pattern other than a tendency to be elongated in a northwest direction, parallel to the trends in the Boundary grid.

A comparison of the ground magnetic trends with the mapped geology suggests either there is little correlation between them or the geological contacts are mapped incorrectly. The mapped contacts trend about 300° whereas the ground magnetics trend about 330°. It is possible the 330° trend is the expression of faulting or shearing.



Contours of total field magnetics

— bold contours at 500 nT

— 100nT contours

— interpreted magnetic discontinuities;
possible geological contact

..... approximate topographic contours
200m interval

(ground surveys by Varitech Resources Ltd.)

NTS 93N/13,14 94C/3.4			
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BOUNDARY AND SLIDE GRIDS GROUND MAGNETIC SURVEYS			
Project: 97-260	Date: June, 1997	Scale: 1:20,000	Figure: 9
ERSI Earth Resource Surveys Inc.			

5. Remote Sensing Investigation

5.1. Introduction

The scene of Landsat Thematic Mapper (TM) digital data acquired for the study was that for Track 050, Frame 021, imaged on August 22, 1986. The full scene measures about 185 x 170km and the pixel size of the raw data is 28.5m.

Basic principles and characteristics of Landsat TM imagery are provided in Appendix I.

5.2. Method

The full scene of Landsat data was orthorectified using 1:50,000 topographic maps in a NAD27 ellipsoid, UTM Zone 10. A subset of data, covering the Duckling Creek area, was extracted and used for the generation of image maps and study.

A number of band combinations, ratios and principal components were experimented with. TM 345 (BGR) showing the most differentiation of cover types. Figure 10 is a grayscale image map of the study area using TM Band 5 (TM5). The composites were enhanced for structural analysis with edge filters.

Primary coniferous forest cover in the TM345 composites is shown by the dark green hues. Leafy green vegetation along the drainage courses and in the alpine areas are shown by the lime to yellow green hues. Bare outcroppings are shown by magenta hues. Water is shown by black.

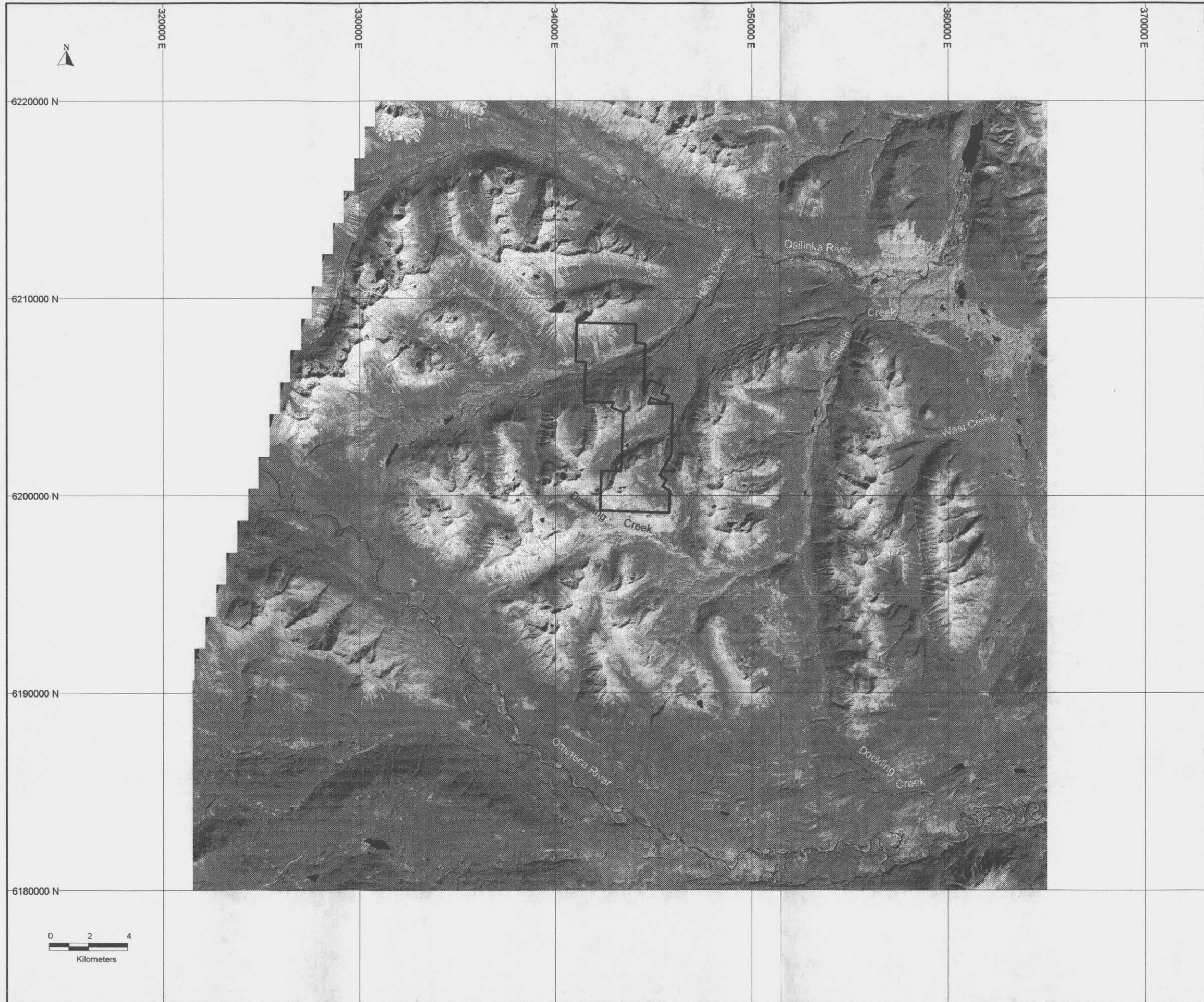
Conventional feature analysis and interpretation procedures are followed in working with Landsat imagery. Two factors are considered; the *spectral* aspects (relative brightness and color combinations) and the *spatial* aspects (distribution of data groups). Analysis of imagery is concerned only with the spectral aspects. In contrast, interpretation is the explanation of the meaning or significance of any part with respect to the whole and relates to both spectral and spatial aspects of the data as well as their relevance to the surficial conditions which they reflect or the subsurface relationships which they are imposed upon. Image interpretation (in the current study) is the identification of geologically correlated elements of landscape; namely landform, drainage and cover patterns, according to the spatial aspects.


Cover patterns are determined by spatially related spectroradiometric groups of data that relate to the reflective properties of surficial materials (vegetation, soil, rock, etc.). The topographic position of these patterns is not a necessary parameter in establishing their presence or boundaries. Geologic materials and/or conditions can be inferred by direct or indirect evidence.

Landform patterns are determined by spatially related spectroradiometric groups of data that relate to topographic conditions of the landscape without respect to the materials present. In the manual interpretive technique, familiar to any air photo interpreter, these boundaries are usually determined by a change in slope or alignment. The objective is to classify an area into terrain units, based on landform shape, size, drainage density, etc., the premise being that an area of similar landform infers similar resistance to surficial agents of erosion and/or to the competence of geologic materials.

Drainage is a special condition of landform; that being the line(s) of lowest landform per unit area. There are three important factors in assessing drainage; pattern, density and gully shape. Landsat imagery can evaluate and compare the first two of these up to scales of 1:25,000 but gully shape can only be assessed in a general way.

Lineaments are mappable simple or composite linear features which may be geomorphic (caused by relief) or tonal (caused by reflectance contrasts). Their inference is dependent upon various





Tam property

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LANDSAT TM BAND 5

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UTM 10 NAD 27

assumptions. Geomorphic lineaments may be landforms, linear boundaries between different types of terrain or breaks within uniform terrain. Tonal lineaments may be a straight boundary between areas of contrasting tone or a stripe against a background of contrasting tone. Differences in vegetation, moisture content, soil or rock type or land-use practices account for most tonal contrasts.

In this project almost all the lineament delineation was done at an approximate scale of 1:50,000, directly on the computer digital file. Because the minimum mapping length is about 0.5cm this means the shortest lineament mapped is about 250m in length. The great majority of remotely sensed lineaments perceived on Landsat imagery are relatively short, with lengths less than 1 to 2km, and are defined by linear stream and gully segments.

A common practice in structural geological investigations is to:

- Map all lineaments according to their definition (geomorphic, tonal, drainage),
- Examine for spatial associations between lineaments, or relationships to known geological features. In the current study emphasis is placed on the identification of lineament "corridors", zones of variously defined lineaments that could represent fault or fracture zones.
- Perform a statistical lineament analysis of lineaments sets or lineament systems, and
- Arrive at a conclusion(s) as to which lineaments are potentially of most interest to the matter at hand.

The types of lineaments delineated in this study were linear segments of large valleys, linear depressions (mostly linear drainage segments), linear ridges, linear bases of steep slopes, linear concave breaks in the slope and tonal lineaments. The majority of the latter are linear lithological boundaries but there were several cases of linear vegetation 'stripes' noted. Tonal lineaments often define "marker" beds useful in establishing geological structure.

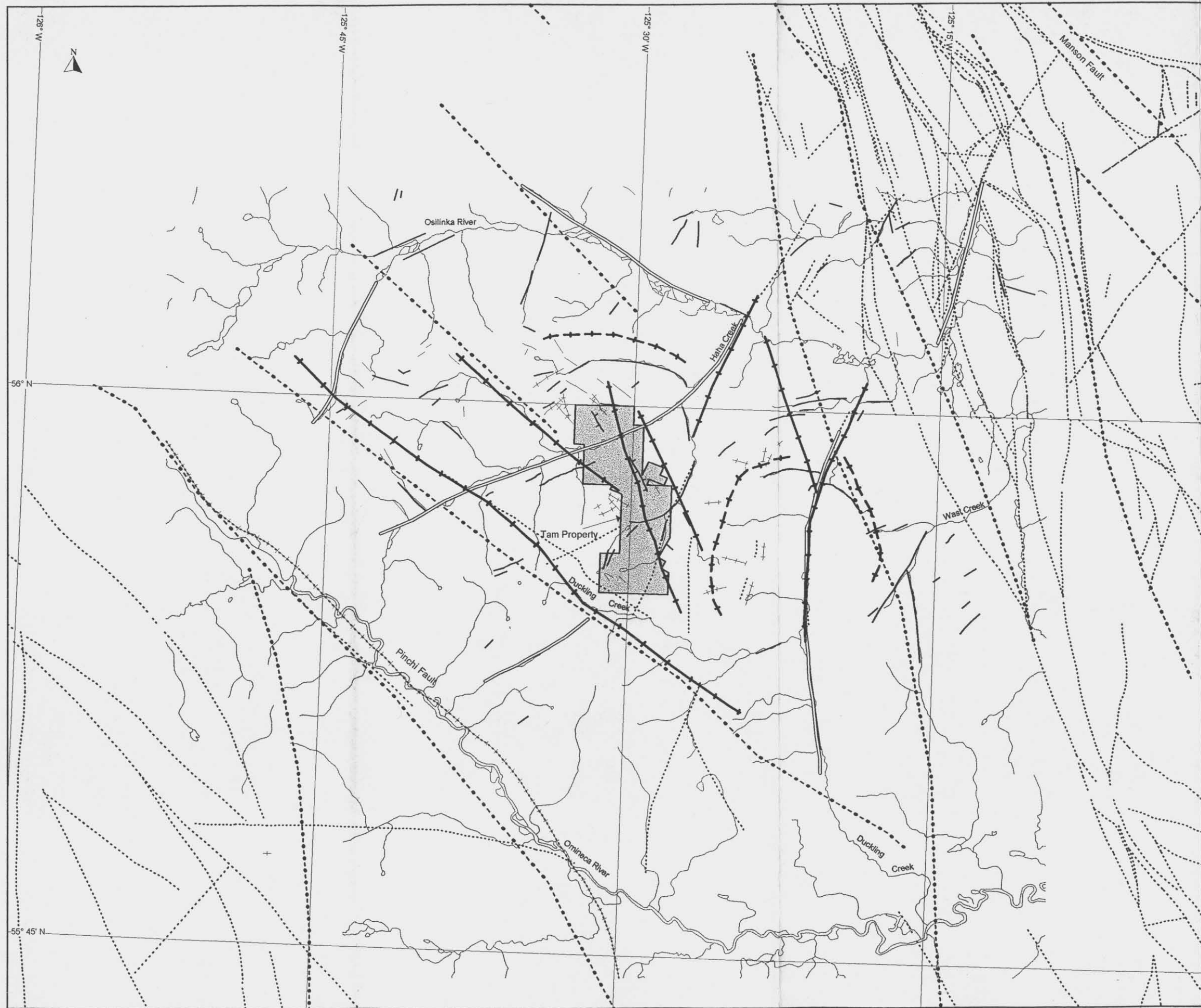
5.3. Results

Field work is absolutely necessary to test any conclusions. No structural remote sensing study can replace the geological field examination. At best it can provide some overview and compilation benefits and hopefully lead to some hypothesis for subsequent field work focus.

Figure 11 is a compilation of features perceived on the Landsat imagery, together with magnetic linears and faults mapped by the Geological Survey of Canada, the B.C. Ministry of Mines and workers on the Tam property. Figure 12 shows strike frequency diagrams for the various data sets.

Regional faults (Figure 12a) are dominated by northwest (A_1 , 315°) and north-northwest (B_1 , 340°) trending sets. The northwest A_1 set is represented by the Pinchi Fault zone (there are a number of splay and branches along the Pinchi; it is not one discrete fault). For such a major fault there is little real evidence reported in the literature on its sense of movement. It is a commonly held supposition that it is a dextral strike slip fault and one of the major wrench faults in northern B.C. If this is the case, and the following discussion is munificently funded with the conditional, then the principal stress orientation would have been close to north-south. The more variable north-northwest B_1 set could then represent Riedel dextral shears developed about the same north-south stress axis. A less developed set trends north-northeast (C_1) and includes the fault along upper Steele Creek and the mid section of Duckling Creek east of the Tam property.

The regional aeromagnetic linears (Figure 12b) reflect both the Pinchi and Manson/Wolverine faults and the north-northwest trends. Figure 11 shows the general close agreement of the regional aeromagnetic linears with the mapped faults. This gives credence to the supposition that many of the magnetic linears mark geological discontinuities, either faults or other lithologic



Mapped Faults

- GSC & B.C. Ministry of Mines
- ++++ Varitech Resources Ltd. 1990-1991

Magnetic Linears

- GSC Regional
- 1970 Aeromagnetics
- 1990 Ground Surveys

Geomorphic Lineaments

- major drainage
- geomorphic lineaments
- tonal lineaments



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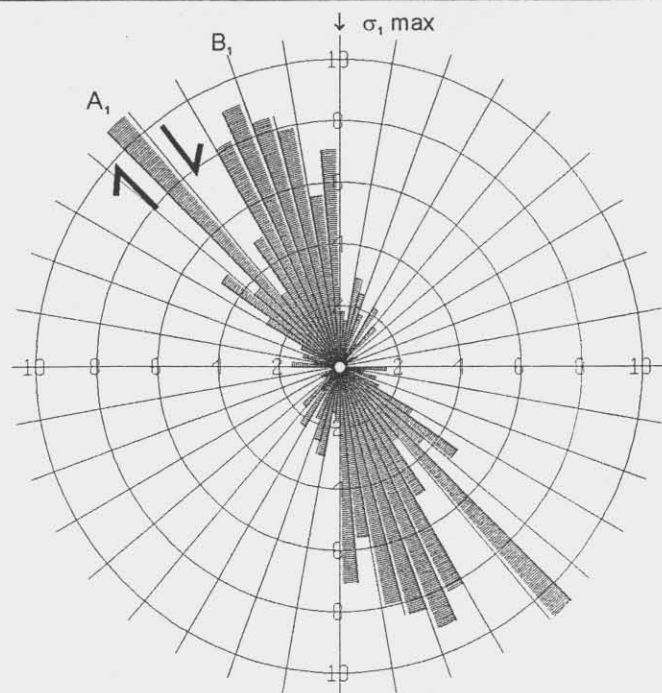
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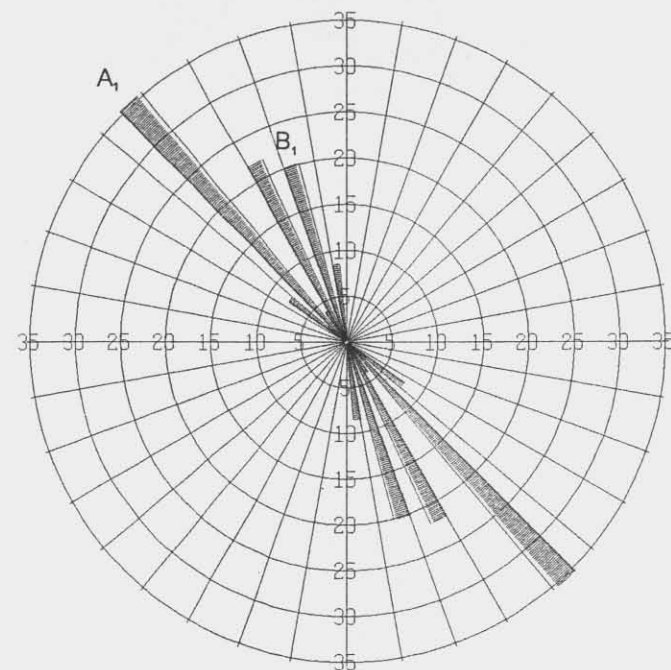
FAULT AND LINEAMENT COMPILATION

Project: 97-260 Date: June, 1997 Scale: 1:200,000 Figure: 11

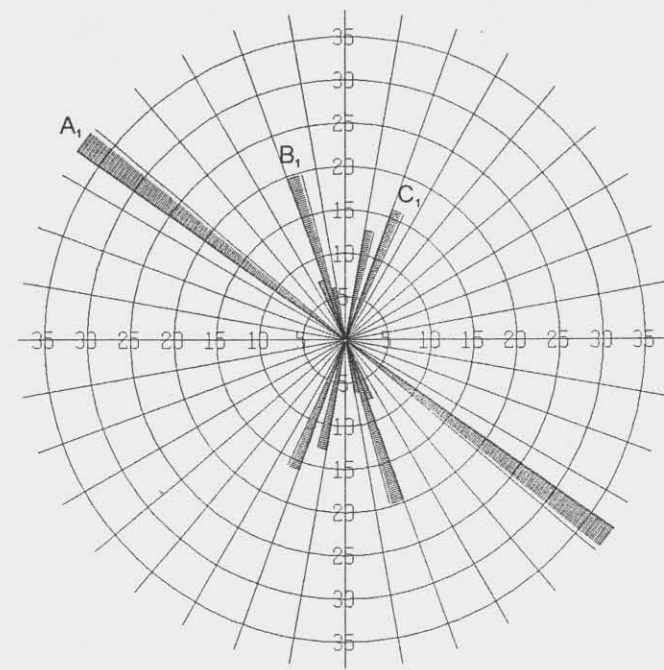
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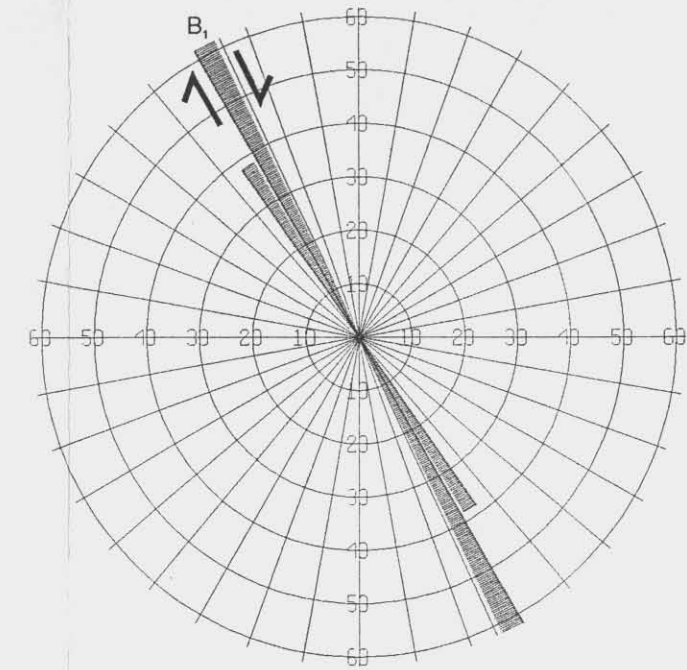
(12a) mapped faults (GSC, B.C. Ministry of Mines)



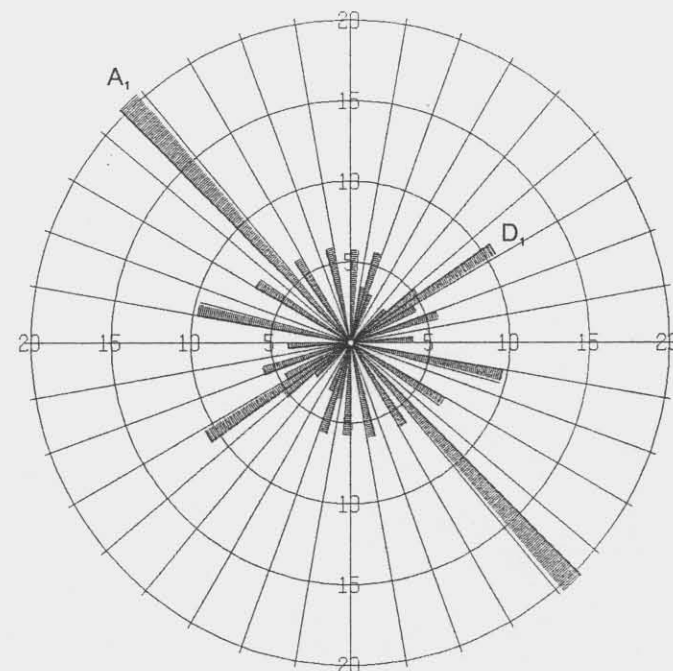
(12b) GSC regional magnetics



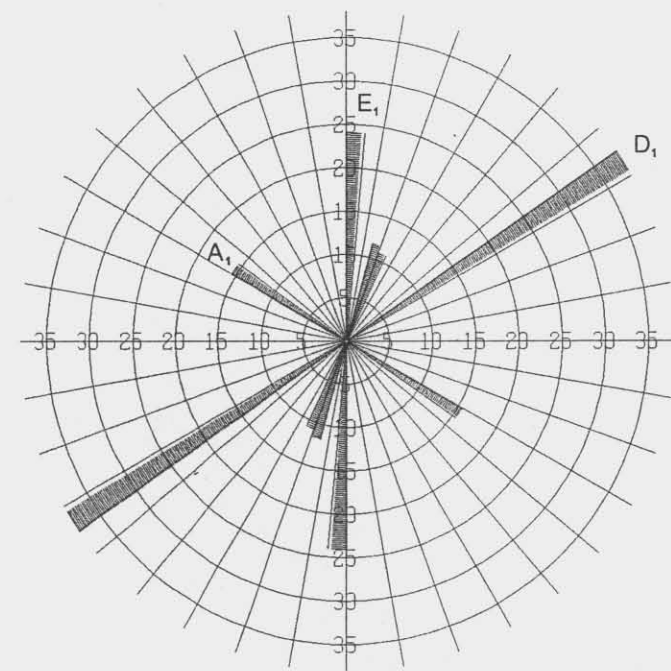
(12c) 1970 aeromagnetics



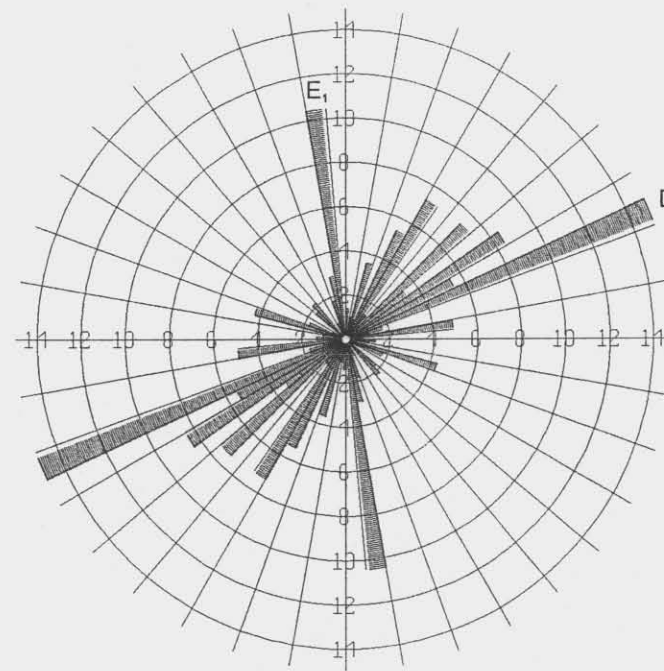
(12d) 1990, 1991 ground magnetics



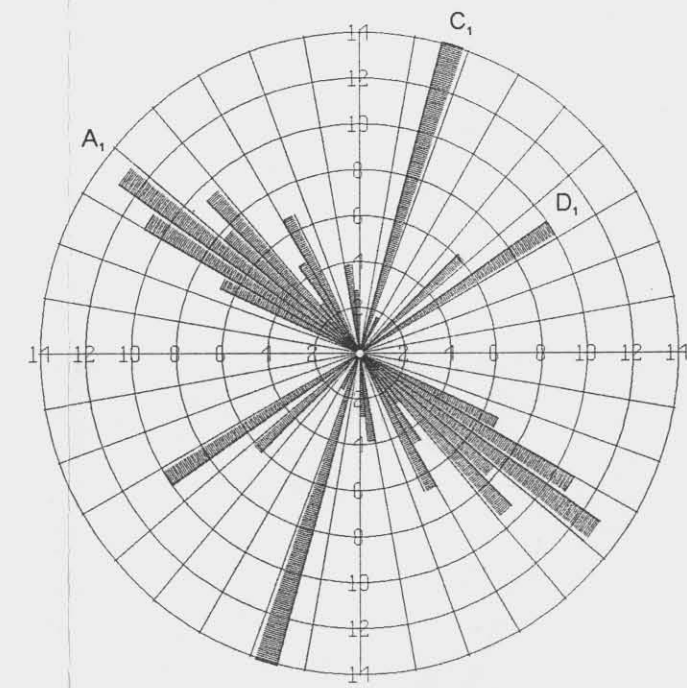
(12e) faults mapped by Varitech Resources Ltd.



(12f) major drainage lineaments



(12g) geomorphic lineaments



(12h) tonal lineaments

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STRIKE FREQUENCY DIAGRAMS (see accompanying text)		
Project: 97-260	Date: June, 1997	Figure: 12
ERSI Earth Resource Surveys Inc.		

boundaries. It also raises the possibility that there are several as yet unmapped faults crossing the study area.

The magnetic linear discontinuities interpreted from the 1970 aeromagnetic survey give corroboration to two of the northwest trending linear features noted from the regional GSC data, those lying on the east side of the Omineca River parallel to the Pinchi Fault zone. The 1970 airborne survey also suggests a north-northwest set, two of which are in the neighbourhood of the Tam property. The north-south to north-northeast linear along upper Steele Creek (the C₁ trend) coincides with the fault mapped there. It bisects the arcuate magnetic features east of the Tam property.

Few features were interpreted from the ground magnetic surveys, Figure 12d, and these trend north-northwest (B₁). As such, they possibly represent the postulated Riedel shear direction.

Several relatively short faults have been mapped by Varitech Resources Ltd. on and in the vicinity of the Tam property, Figures 11 and 12e. The great majority fall into the A₁ Pinchi Fault trend. A northeast set (D₁, 50-60°) is also distinguished. Their nature and origin is uncertain. They lie about 30° from the direction one would usually associate with extension or release fractures due to a north-south principal compressive stress.

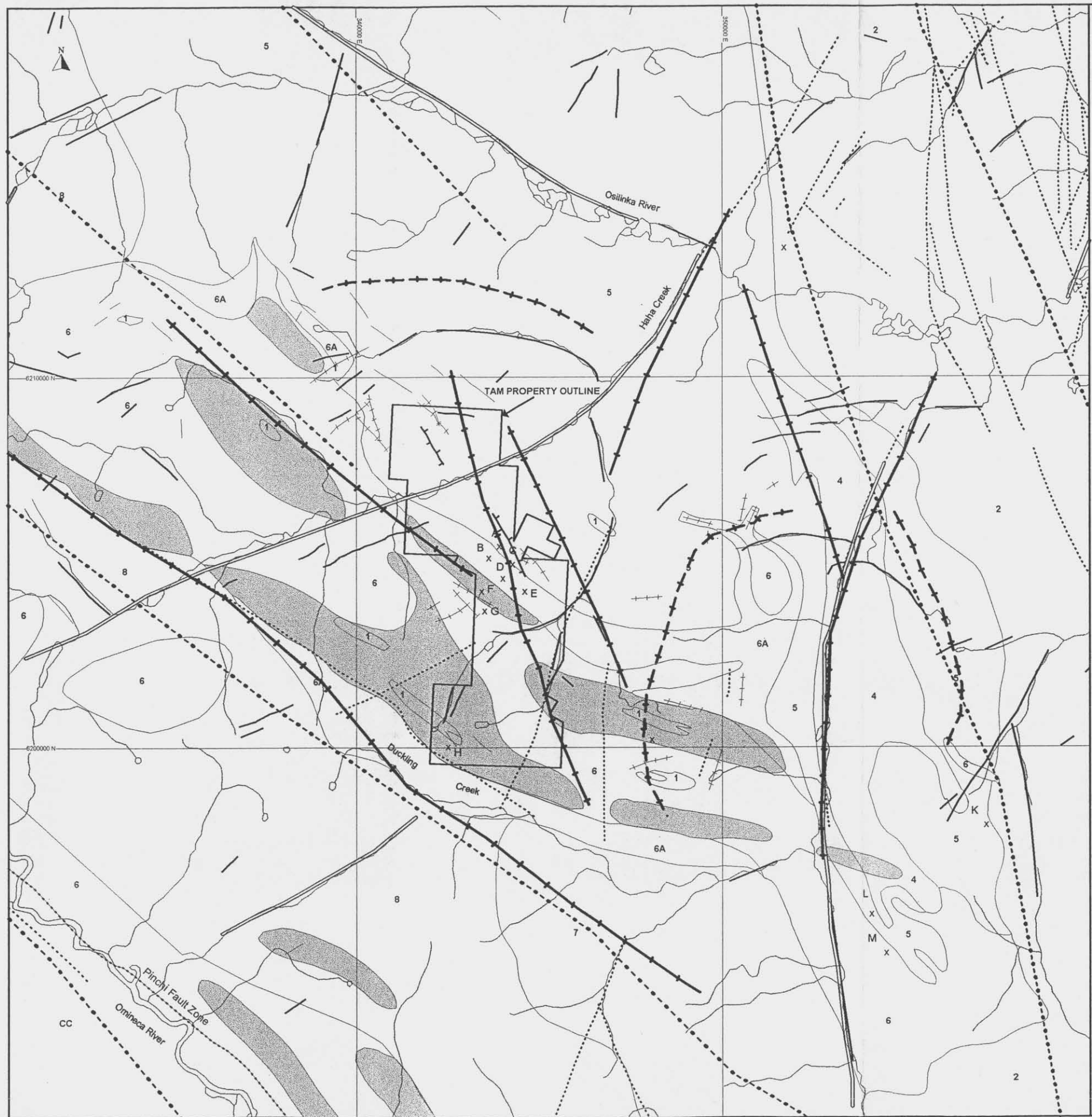
The major geomorphic lineaments, the linear valleys, correlate more or less with regional faults and aeromagnetic linears. A notable exception is the somewhat curvilinear valley of Haha Creek. The general north-south trend of a number of major valleys could be explained by the presence of an extensional fracture set (E₁, 350-05°) associated with the hypothesized north-south principal stress.

The majority of the geomorphic lineaments perceived on the satellite imagery have an east-northeast trend (D₁, 55-70°) or an almost north-south trend (Figure 12g). These are tentatively interpreted as shear and extensional fracture sets, respectively. Notable exceptions are the curvilinear drainageways mimicking the circular magnetic feature centered on upper Steele Creek. Some are clearly bedrock controlled whereas those to the north toward the open valley of the Osilinka River have much in common with lateral glaciofluvial features. Note that even if they are glaciofluvial in nature this does not discount the possibility of their being controlled by bedrock structures.

The majority of tonal lineaments are marker beds having the regional northwest trend. Others represent fracture traces expressed through changes in lithology or cover type.

Figure 13 is a compilation of mapped lithologies and the structural interpretation. The cluster of mineral occurrences in the center of the property occur in three of the mapped units; monzodiorite, syenite and potassium enriched monzonite. What distinguishes this area structurally from places on the claims where the same three units occur is that it lies in close proximity to a northwest trending magnetic linear and to a north-northwest trending linear. The former most likely marks the contact between the syenite and K-altered monzonite. The north-northwest trending magnetic discontinuity could mark the trace of a dextral shear zone. As such, it may have played some part in the mineralization. It could be significant that the area of the Slide grid is near the same feature to the north. There is nothing in the distribution of the mapped units in Figure 13 that would substantiate a circular structure centered on the Tam property, with the exception of the small slice of foliated Takla Group rocks elongated in a east-northeast direction 2km north of the property. There is, however, a good indication of such a feature from the geomorphic evidenced and possibly also in some of the geophysical evidence. In Figure 8, the 1970 aeromagnetic survey, magnetic highs form an arc along the ridge on the north side of Haha Creek, concave to the south. The drainage immediately to the south of this ridge delineates the geomorphic curvilineament.

Structural evidence of arcuate features should be sought in the field using such clues as short dilational fractures or master joints with a variable trend. Particular attention should be paid to the



LEGEND

- 8 Quartz Monzonite (phase 1)
- 7 Grandiorite (phase 1)
- 6A Potassium Enriched Monzonite (phase 2)
- 6 Syenite (phase 2)
- 5 Monzodiorite (phase 1)
- 4 Diorite (phase 1)
- 2 Takla Volcanics
- 1 Foliated Basement Rocks
- CC Cache Creek Sediments

Foliated Zones (phase 2)

x SHOWINGS

- | | | | |
|---|----------|---|-----------|
| A | Boundary | H | Misty |
| B | Creek | I | Cat/Bet |
| C | Midway | J | Lorraine |
| D | Ridge | K | Rondah |
| E | Sam | L | Dorothy |
| F | Cirque | M | Elizabeth |
| G | Fault | N | Duckling |

Mapped Faults

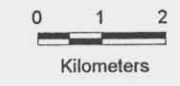
- GSC & B.C. Ministry of Mines
- Varitech Resources Ltd. 1990-1991

Magnetic Linears

- GSC Regional
- 1970 Aeromagnetics
- 1990 Ground Surveys

Geomorphic Lineaments

- major drainage
- geomorphic lineaments
- tonal lineaments



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COMPILATION			
Project: 97-260	Date: June, 1997	Scale: As Shown	Figure: 13
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nature of any fracture infilling or coating material. When such fractures are plotted a pattern may emerge that could either disprove or substantiate the notion of ring fractures or some related phenomena. Detailed examination of fractures in the central part of the property and on the ridge north of the Slide grid might prove useful.

The northeast (D_1) trend is represented by faults on the Tam property (Figure 12e) and in all three of the lineament data sets seen on the Landsat imagery. Their origin is uncertain but it is thought that they probably represent the traces of post intrusive and post mineralization dip-slip fracturing.

6. Discussion and Conclusions

Peto (1991) reported that the late stage leucosyenites (parts of Units 5 and 6, Figure 6) appear to be the most favourable mineralizing source rocks and that the early stage, foliated syenites (the digested roof pendants of Takla Group volcanic rocks) appear to be the most mineralized host rocks. Furthermore, Peto states that the mineralized zones tend to be contact or fault related disseminations and fracture fillings. Therefore, it would seem expedient to identify not only lithologic boundaries on the claims but also fracture locations.

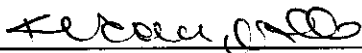
The study of airborne geophysical data and satellite imagery has identified a number of features interpreted to be due to geological discontinuities, either lithologic contacts or structural breaks. The more important of these trend northwest, parallel to the Pinchi Fault and regional lithologic trends, or north-northwest, in the direction of an hypothesized Riedel shear fracture set.

There is fair evidence in the airborne magnetic survey data sets and in the interpretation of geomorphic features that there is a sub-circular or at least arcuate geological feature east of the Tam property centered near the headwaters of Steele Creek. There is a second similar feature expressed in the geomorphology seen on the satellite imagery, and to some extent also in the airborne magnetic survey, that is centered on the northern part of the Tam property, near the Haha Creek valley. It may be significant that two of the areas where exploration has been focused, the Boundary and Slide grids, lie within this feature and are spatially associated with both the northwest wrench fault trend (northwest) and the possible Riedel shear fracture trend (north-northwest).

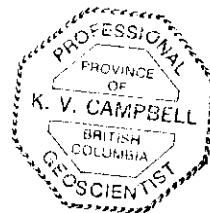
Recommendations for further work include the following:

- Complete 1:10,000 scale mapping of the claims area. There is some confusion in the available reports on the lithology types present and their distribution. These differences of opinion need to be resolved before structural inferences can be made based on the pattern of rock units.
- There is little or no detailed structural information available. Both minor and megascopic structures need to be mapped with particular attention to their nature including vergence, relationships to one another, trends of mineral lineations, minor folds, etc. If one can establish which structures are most likely to host a particular type of mineralization and what their relationship is to one of the major structures present then it may be possible to focus further ground geophysics or drilling efforts.
- A high resolution, multi-parameter airborne geophysical survey over the property could help in mapping the geology and structure.

Respectfully submitted,



ERSi Earth Resource Surveys Inc.
K.V. Campbell, Ph.D., P.Geo., F.G.A.C.

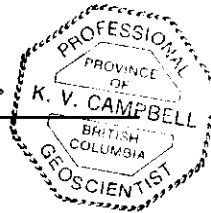


7. Itemized Cost Statement

Data acquisition and preprocessing

One full scene of Landsat TM digital imagery	\$ 5,694.30
Image rectification; 1 full scene to 1:50,000 scale maps	\$ 1,500.00
Transcription to CD-ROM	\$ 150.00
Remote Sensing Analysis:	
K.V. Campbell; 40 hours @ \$75/hour	\$ 3,075.00
Data compilation, database construction:	
K.V. Campbell; 20 hours @ \$75/hour	\$ 1,500.00
M. Goyer; 95 hours @ \$15/hour	\$ 1,425.00
B. Kahlert; 40 hours @\$12/hour	\$ 480.00
Report preparation	\$ 1,500.00
Drafting and miscellaneous materials	\$ 350.00
Title maps and photocopies	\$ 118.79
Secretarial	\$ 100.00
Reproduction	\$ 750.00
Total:	\$ 16,643.09

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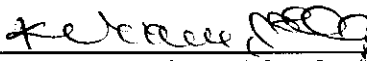
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K.V. Campbell. Ph.D., P.Geo., F.G.A.C.

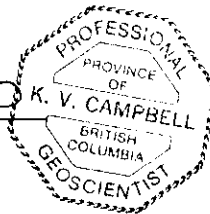
8. Certificate

I, KENNETH VINCENT CAMPBELL, resident of North Vancouver, Province of British Columbia, hereby certify as follows:

1. I am a geologist employed by ERSI Earth Resource Surveys Inc., Suite 311A, 255 West First St., North Vancouver, British Columbia
2. I graduated with a degree of Bachelor of Science, Honours Geology, from the University of British Columbia in 1966, a degree of Master of Science, Geology, from the University of Washington in 1969, and a degree of Doctor of Philosophy, Geology, from the University of Washington in 1971.
3. I have practiced my profession for 31 years. I am a Fellow of the Geological Association of Canada (F0078) and have been a member of the Association of Professional Engineers and Geoscientists of British Columbia since August 11th, 1992.
4. This report, dated June 15th, 1997 is based on my understanding of the geological setting of the Tam Property and a examination of satellite imagery over the area.
5. I have no direct, indirect or contingent interest in shares or business of Major General Resources Ltd. nor do I intend to have any such interest.
6. This report is made available both in printed and digital formats. Permission is given by the author Major General Resources Ltd. to use this report, in all or in part, in any format in their Prospectus or Statement of Material Facts.

Dated at North Vancouver, Province of British Columbia
This 15th day of June, 1997


K.V. Campbell, Ph.D., P.Geo., F.G.A.C.
Geologist



June 15th, 1997

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APPENDIX I

**Basic Principles of Multispectral Imagery and
Characteristics of Landsat Thematic Mapper**

APPENDIX I

Basic Principles of Multispectral Imagery and Characteristics of Landsat Thematic Mapper

The first of the five Landsat satellites that have provided digital imagery for earth observation was launched by the United States in 1972. Landsat 5 is currently operational and, like others before it, carries electro-optical sensors. The satellite orbit is near-polar, passing north to south over the day-time side of the planet several times daily. The orbit shifts progressively westward so that the entire surface of the earth can be imaged in 16 days.

The scanner aboard Landsat 5 is known as the Thematic Mapper (TM). This measures the brightness values over different portions of the electromagnetic spectrum, known as wavebands, with digital numbers (DN) between 0 and 255 (the range of 8-bit data). TM records data from 7 wavebands. The brightness values, or gray levels, are recorded over individual spectral sampling areas known as pixels (from picture elements). The pixel size is nominally 30x30m for the visible and reflected infrared bands and 120x120m for the thermal infrared band. The wavebands are compared in Figure 1 together with wavebands recorded in other satellite systems. The current study utilized TM data because of its superior qualities of ground cell resolution and spectral range.

The seven TM wavebands are the three visible bands (TM 1, 2 and 3 in the order of blue, green and red), one near-infrared band (TM 4), two short-wave infrared bands (TM 5 and 7) and one band in the thermal infrared region (TM 6). Waveband TM 6, 10.4 to 12.5 micrometers, plots off-scale in Figure 1. The energy measured by bands 1 to 5 and 7 is that reflected from the sun; only TM 6 measures energy emitted at the surface. Radiation reflected from the earth's surface back to the satellite (i.e. TM 1 to 5 and 7) has not penetrated more than a few micrometers into the surface material.

Figure 2 presents some typical reflectance curves for common materials. These curves represent the percent of incident light reflected by a material as a function of wavelength. They are routinely used in image processing and analysis to recognize spectral regions in which various materials can be differentiated and to provide a comparative standard for identifying spectra of unknown materials. Image processing techniques are developed by examining spectral curves and noting where the reflectance of a particular material behaves differently than other materials. Mathematic procedures are then applied to the digital data so as to distinguish between various cover types; such as vegetation, clay alteration or some particular lithology.

Digital imagery is commonly viewed either as a single band grayscale image or as a multiband composite. Table 1 and the spectral curve for healthy vegetation (Figure 2) illustrates how such curves can be used to predict the resultant color in a three band composite. For example, vegetation has the highest reflectance values in the green portion of the spectrum (TM 2) over the range of the three visible bands. This is why our eyes perceive a green color in our natural color composite (Case 1, Table 1). However, vegetation has even higher reflectance in the near-infrared (TM 4) and this is why IR (infrared) film or imagery, which ignores the visible blue component and projects visible green, red and near-infrared wavebands with blue, green and red components, represents broadleaf vegetation with bright red colors (Case 2, Table 1). Similarly, a composite of TM 3, 4 and 5 (also written as TM 345) represented in the order of blue, green and red (written as BGR) shows the same vegetation with green hues (Case 3, Table 1).]

Table 1. Color composite generation.

Case	Color Representation or Projection			Resultant Color Representation on Composite Image
	BLUE	GREEN	RED	
1	TM 1 (blue)	TM 2 (green) X	TM 3 (red)	green
2	TM 2 (green)	TM 3 (red)	TM 4 (NIR) X	red
3	TM 3 (red)	TM 4 (NIR) X	TM 5 (SWIR)	green

Dominant (bright) band of each 3 band composite shown by 'X'

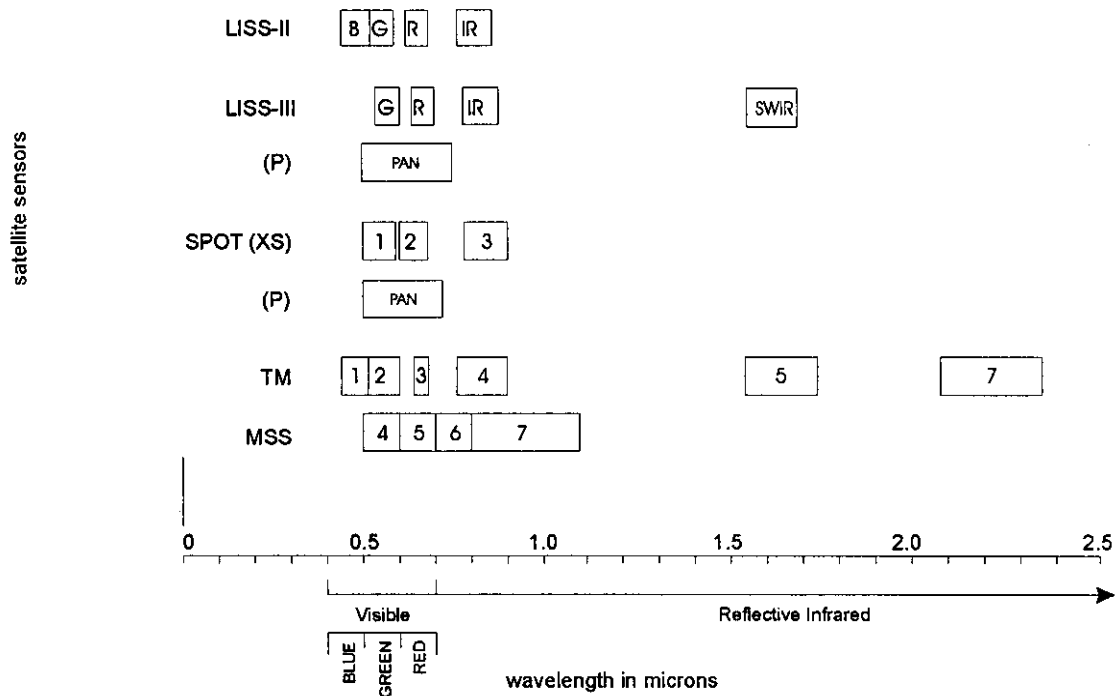


Figure 1. Satellite scanner wavebands or bandpasses.

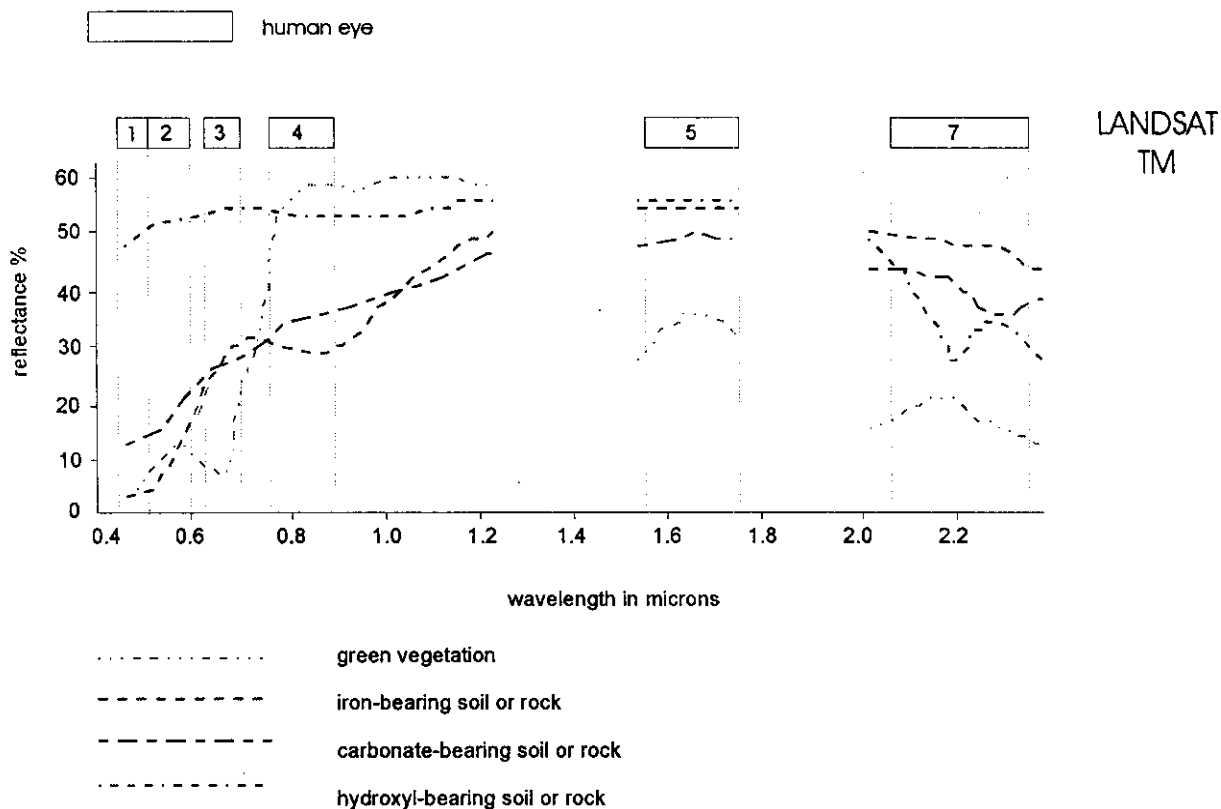


Figure 2. Diagrammatic spectra, illustrating positions of diagnostic iron, clay, carbonate and chlorophyll absorption bands and the bandpasses of TM sensors.