

**GEOLOGICAL REPORT
ON THE
STAR CLAIMS**

**BY
U. MOWAT, P. Geo.**

24300

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VANCOUVER, B.C.**

GEOLOGIC REPORT

on the

STAR CLAIMS

OMINECA MINING DIVISION

**GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORTS**

DATE RECEIVED

FEB 20 1996

N.T.S. 94-C-5E and 94-C-12E

Lat.: 56°29'N Long.: 125°40'W

by

U. MOWAT, P. Geo.

FILMED

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

February, 1996

24,300

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Maps

Geology	in pocket
Sample Sites	in pocket
Compilation: Geology and Sample Sites	in pocket

1.0 INTRODUCTION

On June 20, 1995, 2 men examined a small portion of the Star 1 - 5 claims for its porphyry copper and magmatic copper potential. The Star claims cover the pyroxenitic phase of the Polaris ultramafic complex. Twenty-five rock samples, 6 soil samples and 2 silt samples were collected. All samples were analysed for Cu by ICP and Au by wet extraction. In addition, 13 of the samples were also analysed for Pt by fire assay.

2.0 LOCATION AND ACCESS

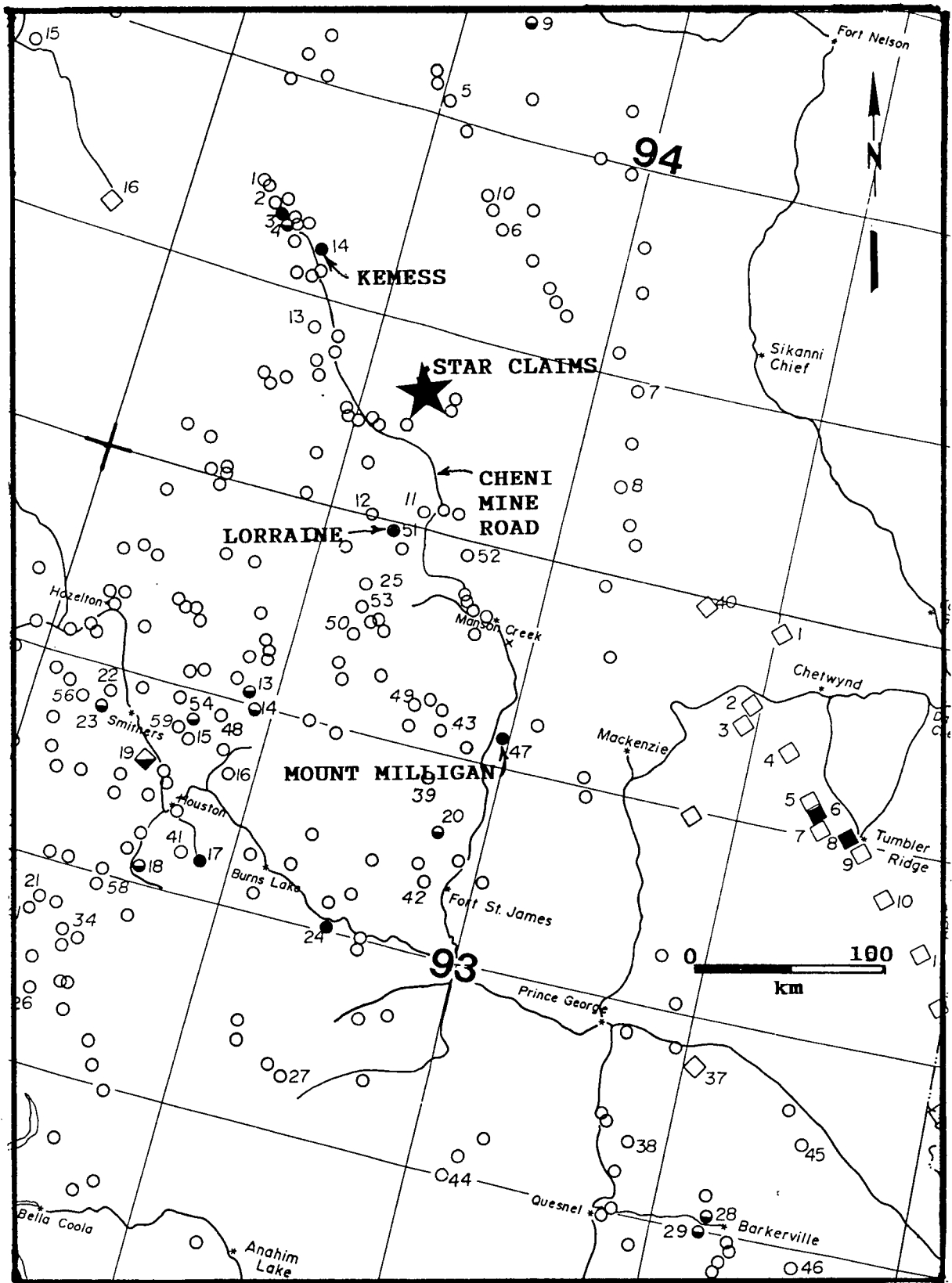
The Star 1 - 5 claims, which are located on map sheets 94-C-5E and 94-C-12E, are 13 km northeast of Aiken Lake and 100 km almost due north of Germansen Landing.

Access to the property is by helicopter from Fort St. James. The Cheni Mine Road (Omineca Forestry Road) passes within 8 km of the property.

3.0 CLAIM DATA

<u>Claim Name</u>	<u>Record Number</u>	<u>No. of Units</u>
Star 1	334025	20
Star 2	334026	20
Star 3	334027	20
Star 4	334028	20
Star 5	334029	20

The property consists of 5 4-post claims, totalling 100 units. The registered owner is U. Mowat.



LOCATION MAP : STAR CLAIMS

4.0 HISTORY

The area of the Polaris Complex has been examined by R. G. McConnell in 1894, V. Dolmage in 1927, D. Lay in 1939 and J. E. Armstrong in 1945. The first mapping of the Polaris Complex was done by E. F. Roots in 1946, 1947 and 1948.

No geological activity is recorded until 1968 when T. N. Irvine made petrologic studies of the Polaris Complex. The area remained idle until 1974 when T. N. Irvine and F. H. Foster mapped the Polaris Complex in some detail.

In 1986, a small portion of the Polaris Complex was staked by Equinox Resources who conducted an extensive silt and rock sampling program over their ground in a search for Pt group metals. In 1987, Lacana Mining Corporation and Esso Minerals also staked portions of the Polaris Complex for the same reason. In 1988 and 1989, the Polaris Complex was mapped and petrologically studied by the BCDM as part of a Pt-chromite study.

The Star 1 - 5 claims were staked in February, 1995 to cover a unit of the Polaris Complex lithologically similar to the Voisey's Bay nickel-cobalt discovery.

5.0 REGIONAL GEOLOGY

The Polaris Complex is located in the Omineca Crystalline Belt which is bounded on the west by Triassic Takla volcanics and sediments. The eastern side of the Omineca Crystalline Belt is separated from the Upper Proterozoic Ingenika Group and the Wolverine Metamorphic Complex, which both consist of sediments and metasediments including gneisses and schists, by the Swannell Fault.

The area immediately west of the Polaris Complex is underlain by the Lay Range Assemblage which has also been called the Slide Mountain Group and the Harper Ranch Group by various authors. The lithologies consist of mafic tuffs, argillites, metavolcanics, metasediments and limestones and are of Middle Pennsylvanian to Permian in age. The area to the east of the Polaris Complex is underlain by shale, argillite and limestone of either Upper Devonian to Lower Permian Big Creek Group, Cooper Ridge Group or the Slide Mountain Group.

The Polaris Complex, a crudely zoned ultramafic massif, is approximately 15 km long and 3 to 4 km wide. The core of the complex is olivine-rich rocks of dunite, peridotite and wehrlite. The outer phases become more pyroxenitic and grade from olivine clinopyroxenite to pyroxenite to hornblende-magnetite pyroxenite and finally to hornblende and metamorphosed, metasomatized volcanics and sediments. The Polaris Complex exhibits a thermal halo up to 2500 meters in width. In certain areas, the metasomatism has been so intense that hornblende crystals up to 1 meter in length have been observed.

The Polaris Complex and the surrounding area have been intruded by Late Triassic to Cretaceous syenites and diorites which are probably related to the Hogem Intrusive Complex. Potassium-argon dating of biotite forming a potassic halo around one intrusive in the Polaris Complex, yielded ages of 167 ± 9 Ma and 156 ± 15 Ma.

Mineral deposits in the vicinity of the Polaris Complex include several high grade but small gold-bearing quartz veins associated with intrusive dykes in the argillite, amphibolite containing coarsely crystalline pyrrhotite, pyrite, chalcopyrite and arsenopyrite as seams and as bodies up to 8 meters wide and 150 meters long consisting of 40% sulphide, and also shale-hosted zinc-lead sedex-type mineralization.

6.0 PROPERTY GEOLOGY

The Star 1 - 5 claims are dominantly underlain by a pyroxenitic suite of rocks of the Polaris Complex. The pyroxenitic unit varies from olivine pyroxenite to coarse-grained pyroxenite to hornblende-rich pyroxenite. Minor amounts of porphyritic hornblende crystals up to 20 cm long are found in a felspar?-rich matrix. The southern claims and the lower elevations of the property are more olivine-rich. The northern portion (Star 5) appear to be underlain mainly by metamorphosed basalt? and siltstones.

Several intrusives were also noted and range in composition from syenite to diorite and occur as dykes and amorphous plugs.

Limestone was also seen on the Star 3 at the periphery of the ultramafic.

7.0 MINERALIZATION

The main mineralization on the Star claims is pyrite with lesser amounts of chalcopyrite both occurring within the pyroxenitic units. The sulphides occur as coarse-grained disseminations and form up to 40% of a specimen. Previous sampling by Lacana and Equinox clearly show that the chalcopyrite in this unit carries Pt, Pd and occasionally Au. Sampling done while prospecting also indicates that the olivine pyroxenite is anomalous in Pt and Pd (112 ppb Pt, 35 ppb Pd) and since no sulphides were noted, it is suggested that the PGE's occur as discrete entities probably associated with magnetite.

Pyrite forms an intense halo around several of the intrusive bodies. It also occurs as coarse-grained disseminations and forms 10 to 40% of a specimen.

Pyrite was also seen in the siltstones located on the Star 5 claim. The pyrite is fine-grained and forms 5 to 10% of the unit in this area.

Pyrite and arsenopyrite were noted in some listwanite and in quartz boulders.

8.0 ALTERATION

The most obvious alteration seen on the Star claims is listwanite composed dominantly of carbonate with lesser amounts of quartz and mariposite and a trace of pyrite and arsenopyrite. The listwanite weathers to a bright orange. Extensive listwanite development occurs on the Star 3 claim. The largest body forms a linear feature 50 meters wide and at least 200 meters long. Numerous shear and fault zones in this area also contain listwanite development.

The olivine pyroxenite has undergone serpentinization of variable intensity. Specimens range from waxy green with barely recognizable pyroxenite features to fresh-looking. In addition, intrusives within the olivine pyroxenite unit have, in several locations, produced a potassic alteration halo consisting of biotite which reaches 2.5 cm in diameter and minor quartz veining with K-spar, carbonate and epidote.

The basalt and siltstones appear to be little altered save for minor hornfelsing.

9.0 WORK PROGRAM

On June 20, 1995, 2 men traversed 5 km of ridge tops and hillsides to determine the potential for a porphyry copper and a magmatic copper deposit. Twenty-five rock samples, 6 soil samples and 2 silt samples were collected. All samples were analysed for Cu by ICP and Au by wet extraction. In addition, 13 of the samples were also analysed for Pt by fire assay.

10.0 SAMPLE DESCRIPTIONS

Sample Number	Sample Description	Cu ppm	Au ppb	Pt ppb
7164	Silt	142	5	0
7165	Coarse-grained serpentized pyroxenite with magnetite and 5% pyrite	74	5	
7166	As 7165	364	5	0
7167	As 7165	363	5	0
7168	Coarse-grained pyroxenite with biotite?	293	5	0
7169	Porphyritic hornblendite with malachite	897	5	
7170	Biotite pyroxenite with malachite	345	10	0
7171	As 7170	615	5	0
7172	Soil taken over listwanite	113	5	
7173	Soil taken over listwanite	190	10	
7174	Soil taken over listwanite	122	5	
7175	Soil taken over listwanite	299	10	
7176	Soil taken over listwanite	235	10	
7177	Soil taken over listwanite	184	5	
7178	Rusty volcanic?	108	5	
7179	Slightly rusty pyroxenite with 1% pyrite	910	10	0
7180	White limestone	9	5	
7181	White limestone; partially silicified	20	5	
16457	Gabbro; irregular blebs of 5 - 6% pyrite; hematitic	516	5	0
16458	Grabs of talus; cooked sediments at edge of gabbro; black, silicified; 2 - 3% pyrite	235	5	

Sample Number	Sample Description	Cu ppm	Au ppb	Pt ppb
16459	Chips of talus; silicified hornfelsed sediments and tuffs +/- limestone; rusty; minor pyrite; some carbonate veins	351	10	
16460	Grabs; red-brown gabbro and dunite; 2 - 5% dusty pyrite; trace chalcopyrite	102	5	
16461	Float; pyroxenite with 6 - 10% disseminated pyrite; trace chalcopyrite	513	15	0
16462	Pyroxenite with disseminated pyrite < 3%	224	5	7
16463	Grabs of rusty pyroxenite; disseminated and irregular blebs of 2 - 5% pyrite	472	5	0
16464	Grabs; dark green pyroxenite with magnetite, trace chalcopyrite and malachite	443	10	6
142351	Dark grey, dense with angular fracturing; basalt?; trace pyrite; strongly magnetic	155	0	0
142352	Dark grey, v.f.g. intrusive; 70% white feldspar matrix; 30% biotite?; non-magnetic; K-spar veining	147	6	9
142353	Dark grey, dense with angular fracturing; same as 142351 with occasional feldspar visible; trace pyrite and minor sucrosic quartz sections; non-magnetic	105	4	0
142354	Dark grey, olivine pyroxenite with 10% phlogopite?; magnetic	26	0	112
142355	Dark grey, knobby texture; olivine pyroxenite with v.f.g. phlogopite?, weakly magnetic	7	0	6
142356	Greenish bronzey olivine pyroxenite with c.g. crystals of pyroxene and much olivine; slightly magnetic	5	0	100
142994	Dark grey siltstone with rusty fractures	72	5	
142995	Listwanite with quartz stringers	18	5	

Sample Number	Sample Description	Cu ppm	Au ppb	Pt ppb
142996	Coarse-grained pyroxenite with 10% pyrite and trace chalcopyrite	775	15	5
142997	Pyroxenite with trace pyrite	176	5	8
142998	Quartz boulders in creek with 2% pyrite and trace arsenopyrite	130	5	
142999	Carbonated volcanic? with carbonate veining	89	5	
143000	Silt	211	10	

11.0 CONCLUSIONS

Abundant unmapped intrusives, occurring as dykes and amorphous plugs with accompanying pyrite halo +/- potassic alteration, were noted intruding the pyroxenite units. In addition, the pyroxenitic units also carry magmatic sulphides, dominantly pyrite with minor chalcopyrite. Review of previous work also clearly indicates the presence of magmatic copper mineralization. Values up to 7220 ppm Cu have been obtained in the pyroxenitic units in the previous sampling.

It is therefore concluded that both types of copper mineralization exist on the Star claims.

12.0 RECOMMENDATIONS

It is recommended that a program of detailed prospecting and soil sampling be conducted over the Star claims.

13.0 REFERENCES

- Assessment Report 15955, Report on a Geochemical Survey of the Polaris Property Consisting of the Polaris Claim, Pole 1 and Pole 2 Claim, by Jay W. Page, 1986.
- Assessment Report 16236, Report on Geological and Geochemical Work, "Lay" Claims, Aiken Lake, by D. Johnson, 1987.
- Assessment Report 16628, Report on Prospecting and Sampling Work, Lay Property, Aiken Lake, by R. J. Johnston, 1987.
- GSC Paper 46-11, Aiken Lake (South Half) British Columbia, by J. E. Armstrong, 1946.
- GSC Paper 48-5, Geology and Mineral Deposits of Aiken Lake Map Area, British Columbia, by J. E. Armstrong and E. F. Roots, 1948.
- GSC Paper 68-1, Part A, Petrologic Studies of Ultramafic Rocks in the Aiken Lake Area, British Columbia (94-C West-Half), by T. N. Irvine, p. 110, 1968.
- GSC Paper 74-1A, Ultramafic and Gabbroic Rocks in the Aiken Lake and McConnell Creek Map Areas, British Columbia, by T. N. Irvine, pp. 149 - 152, 1974.
- GSC Paper 76-1A, Alaskan-type Ultramafic-Gabbroic Bodies in the Aiken Lake, McConnell Creek and Toodoggone Map-Areas, by T. N. Irvine, pp. 76 - 81, 1976.
- BCMEMP Bulletin 1, Aiken Lake Area, North-central British Columbia, by R. Lay, 1932.
- Open File 1989-17, Preliminary Geology and Noble Metal Geochemistry of the Polaris Mafic-Ultramafic Complex, by G. Nixon et al., 1989.
- Open File 1990-13, Geology of the Polaris Ultramafic Complex, by G. Nixon et al, 1990.
- GSC Memoir 274, Geology and Mineral Deposits of Aiken Lake Map Area, British Columbia, by E. F. Roots, 1954.

B. Sc. Thesis, U.B.C., History and Origin of the Polaris
Ultramafic Complex in the Aiken Lake Area of North-
central British Columbia, by F. H. Foster, 1974.

14.0 STATEMENT OF COSTS

1) Analyses

25 rock samples analysed for Cu and Au at \$13.55/sample	\$ 338.75
10 rock samples analysed for Pt at \$10.90/sample	109.00
6 rock samples analysed for 30 element ICP and Au, Pt, Pd by FA/ICP at \$20.01/sample	120.06
Freight and surcharge	30.35
8 soil samples analysed for Cu and Au at \$10.80/sample	86.40
2 soil samples analysed for Pt at \$10.90/sample	21.80
GST	49.52
	<hr/>
	\$ 756.88

2) Helicopter

4 hours at \$600/hour	2400.00
342 liters at \$0.65/liter	222.30
114 liters at \$1.25/liter	142.50
GST	196.34
	<hr/>

\$3001.14

3) Wages

10 man days at \$350/day for drafting, report writing, compilation and prospecting	3500.00
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4) Accommodation

2 rooms at \$50.60/room	101.20
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5) Meals

56.25

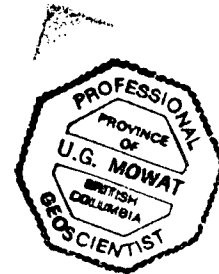
6) Reproduction, copying	75.00
7) Travel	329.28
	<hr/>
	\$7819.75

15.0 Statement of Qualifications

1. I am a graduate of the University of British Columbia having graduated in 1969 with a Bachelor of Science in Geology.
2. I have practiced my profession since 1969 in mineral exploration, oil and gas exploration and coal exploration.
3. I am a registered member of the Association of Professional Engineers and Geoscientists of British Columbia.
4. I have a direct interest in the Star Claims.

Ursula G. Mowat

Ursula G. Mowat, P. Geo.



DATED THIS 14th DAY OF February, 1996
AT VANCOUVER, B. C.



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• ENVIRONMENTS
LABORATORIES**
(DIVISION OF ASSAYERS CORP.)

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SMITHERS LAB:
3176 TATLOW ROAD
SMITHERS, B.C. CANADA V0J 2N0
TEL (604) 847-3004
FAX (604) 847-3005

Geochemical Analysis Certificate

5S-0036-RG2

Company: **COLUMBIA GOLD MINES**
Project:
Attn: **WAYNE ROBERTS**

Date: **JUL-12-95**
copy 1. Columbia Gold Mines, Vancouver, B.C.

We hereby certify the following Geochemical Analysis of 24 ROCK samples submitted JUN-22-95 by W. Roberts.

Sample Number	Au-Wet PPB	Cu PPM	Pt-fire PPB	
✓16458	5	235		
✓16459	10	351		
✓16460	5	102		STAR
✓16461	15	513	<5	
✓16462	5	224	7	
✓16463	5	472	<5	
✓16464	10	443	6	
16465	5	85		
16466	5	13		LINKA
16467	20	305		
16468	25	337		
142967	10	5		
142968	5	62		
142969	5	3		
142970	5	37		
142971	5	39		
142972	5	50		BORNITE
142977	5	8		
142978	5	7		
142979	5	6	5	
142980	5	4		
142981	5	6		
142982	5	63		
142983	5	51		BORNITE NORTH

Certified by _____

MIN-EN LABORATORIES



AA
LL

GEOCHEMICAL ANALYSIS CERTIFICATE

AA
LL

Ursula Mowat File # 95-0621

1405 - 1933 Robson St., Vancouver BC V6G 1E7

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Au**	Pt**	Pd**
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppb	ppb	ppb
E 142351	1	155	<3	64	<.3	11	21	575	5.64	<2	<5	<2	<2	42	<.2	<2	<2	203	1.31	.052	2	8	1.38	98	.37	5	1.60	.11	.21	<2	<4	<6	<6
RE E 142351	1	147	<3	61	<.3	9	19	547	5.41	<2	<5	<2	<2	41	<.2	<2	<2	196	1.28	.049	2	6	1.32	95	.37	5	1.54	.11	.20	<2	6	9	7
E 142352	1	61	<3	32	<.3	18	9	334	1.98	2	<5	<2	2	8	<.2	<2	3	75	1.25	.067	10	37	1.08	25	.37	5	1.14	.08	.08	<2	<4	9	<6
E 142353	1	105	8	70	<.3	32	24	795	4.89	<2	<5	<2	<2	46	<.2	<2	<2	167	1.50	.068	8	31	2.15	240	.22	6	2.22	.10	.10	<2	4	<6	6
E 142354	1	26	8	31	<.3	425	58	641	4.35	3	<5	<2	<2	7	.4	<2	3	38	.23	.004	<1	531	7.18	10	.04	9	.27	.01	.04	<2	<4	112	35
E 142355	2	7	5	24	<.3	1021	74	589	3.79	2	<5	<2	<2	1	<.2	<2	<2	6	.10	.005	<1	240	12.27	2	.01	9	.13	<.01	<.01	<2	<4	6	<6
E 142356	1	5	7	25	<.3	369	56	535	3.45	<2	<5	<2	<2	2	.3	<2	<2	9	.16	.004	<1	70	7.96	7	.01	6	.12	<.01	<.01	<2	<4	100	35
STANDARD C/FA-100S	20	60	40	126	7.3	72	33	1056	3.90	42	18	6	40	51	18.2	15	20	61	.51	.092	40	62	.92	182	.08	33	1.87	.06	.15	10	53	48	47

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.

THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.

ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB

- SAMPLE TYPE: ROCK AU** PT** PD** BY FIRE ASSAY & ANALYSIS BY ICP/GRAPHITE FURNACE.

Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: MAR 3 1995 DATE REPORT MAILED: *March 10/95* SIGNED BY: *C. Leong* D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

94C12E

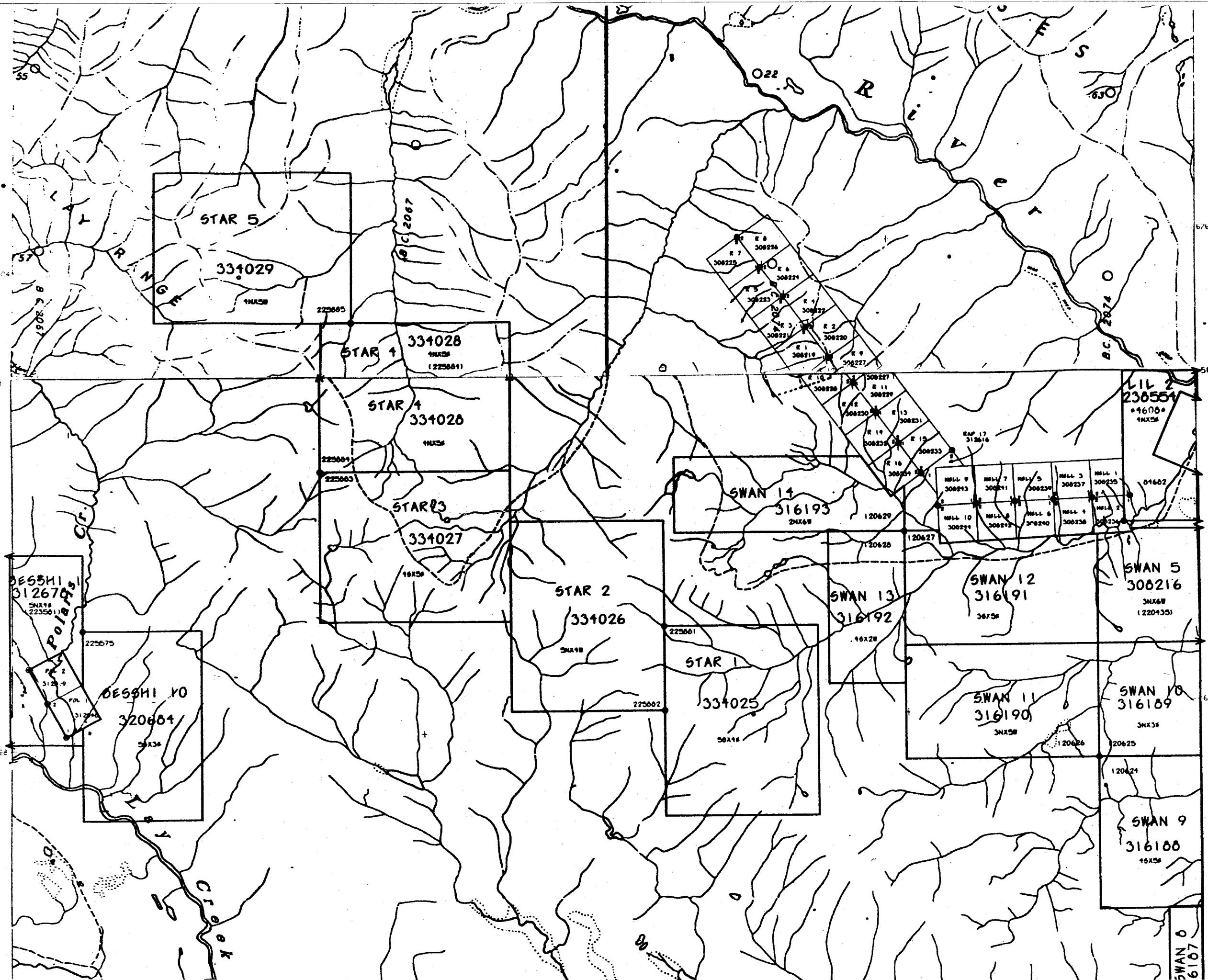
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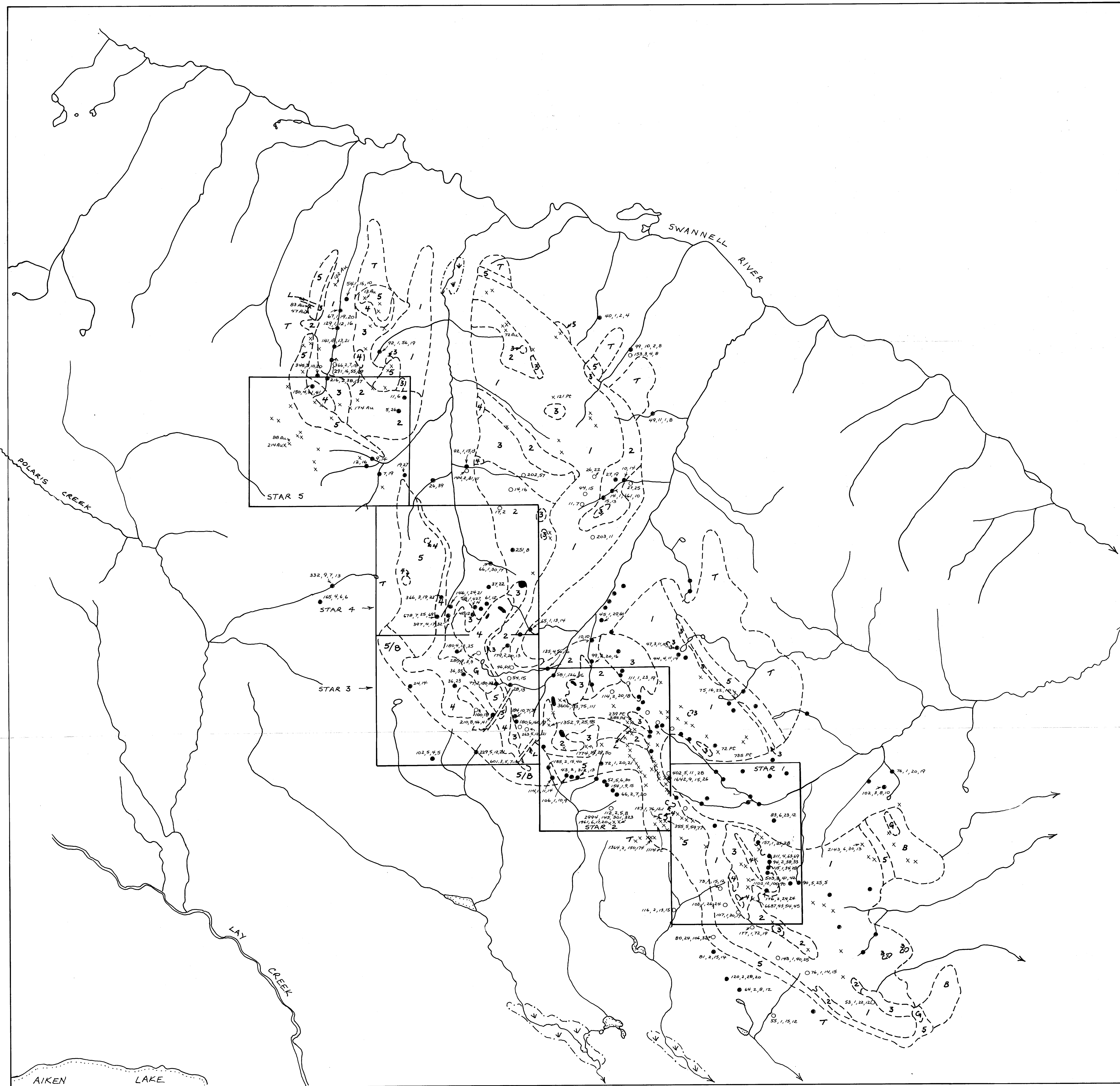


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56°30'0"

6259368

SWAN 0
6167



- 1 dunite
- 2 peridotite/ wehrlite
- 3 olivine clinopyroxenite
- 4 hornblende-magnetite clinopyroxenite
- 5 amphibolite
- B basic volcanic tuffs
- T tuffs and tuffaceous sediments
- L listwanite
- syenite
- G gabbro and diabase

claim boundary
 STAR 5

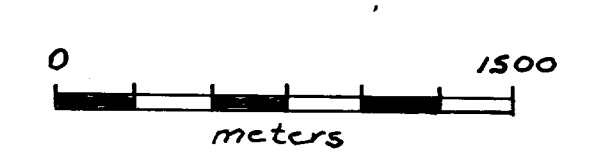
- slit sample
- soil sample
- x rock sample
- 720, 6, 4, 11 Copper (ppm), Au (ppb), Pt (ppb), Pd (ppb)
- 122 Au Gold (ppb)
- 1114 Pt Platinum (ppb)
- 202, 57 Platinum (ppb), Palladium (ppb)
- slit - no significant values
- soil - no significant values
- x rock - no significant values

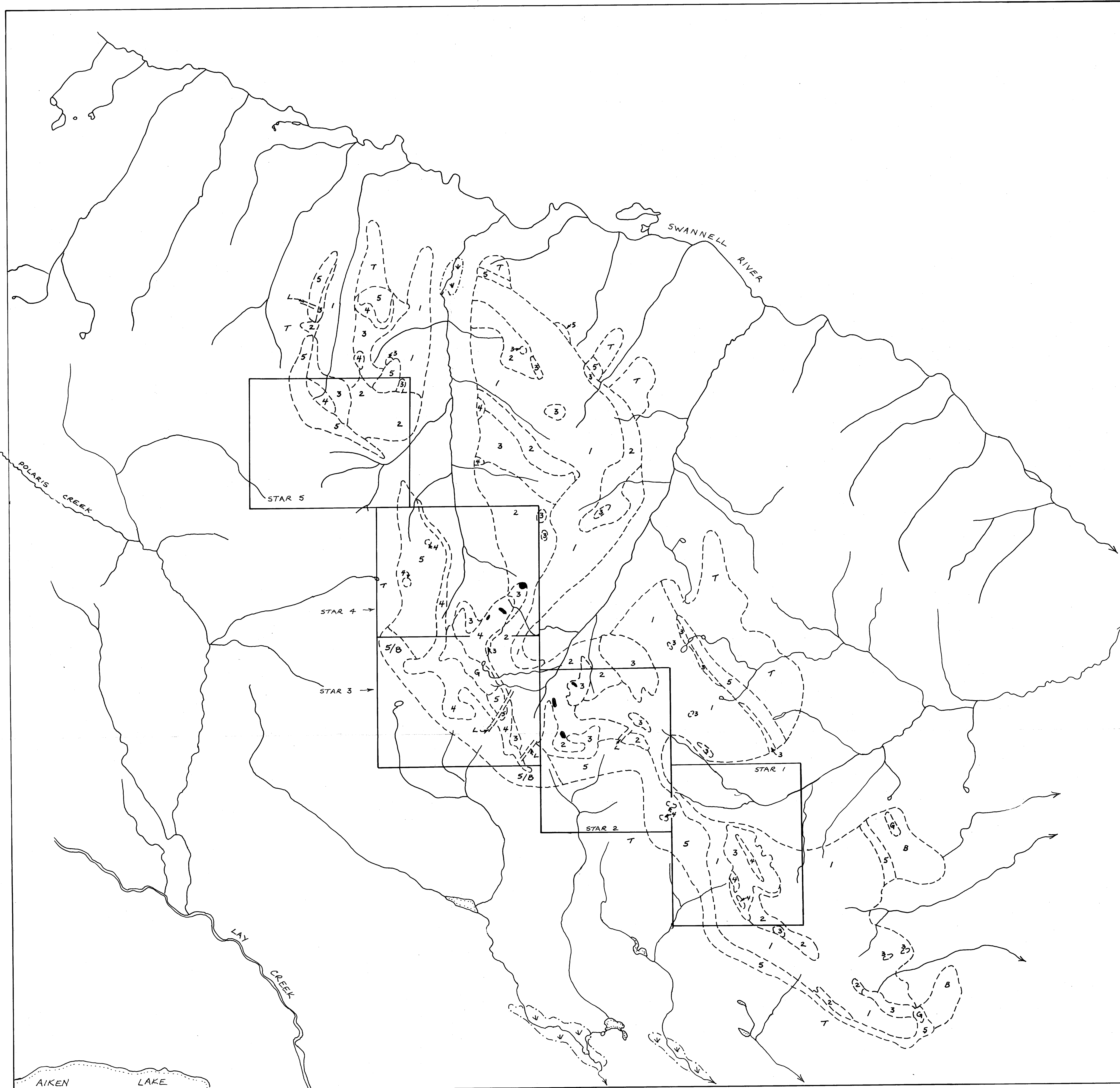
GEOLOGICAL BRANCH
 ASSESSMENT REPORT

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COMPILATION MAP
 STAR CLAIMS

1:25,000





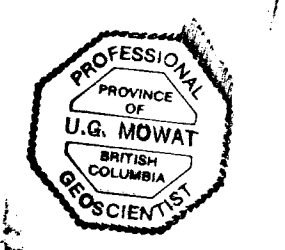
- 1 dunite
- 2 peridotite/ wehrlite
- 3 olivine clinopyroxenite
- 4 hornblende-magnetite clinopyroxenite
- 5 amphibolite
- B basic volcanic tuffs
- T tuffs and tuffaceous sediments
- L listwanite
- syenite
- gabbro and diabase

└── claim boundary
 STAR 5

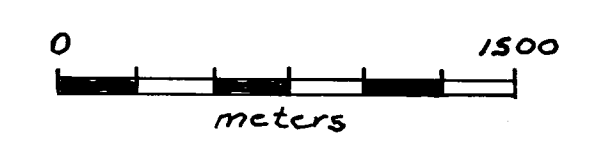
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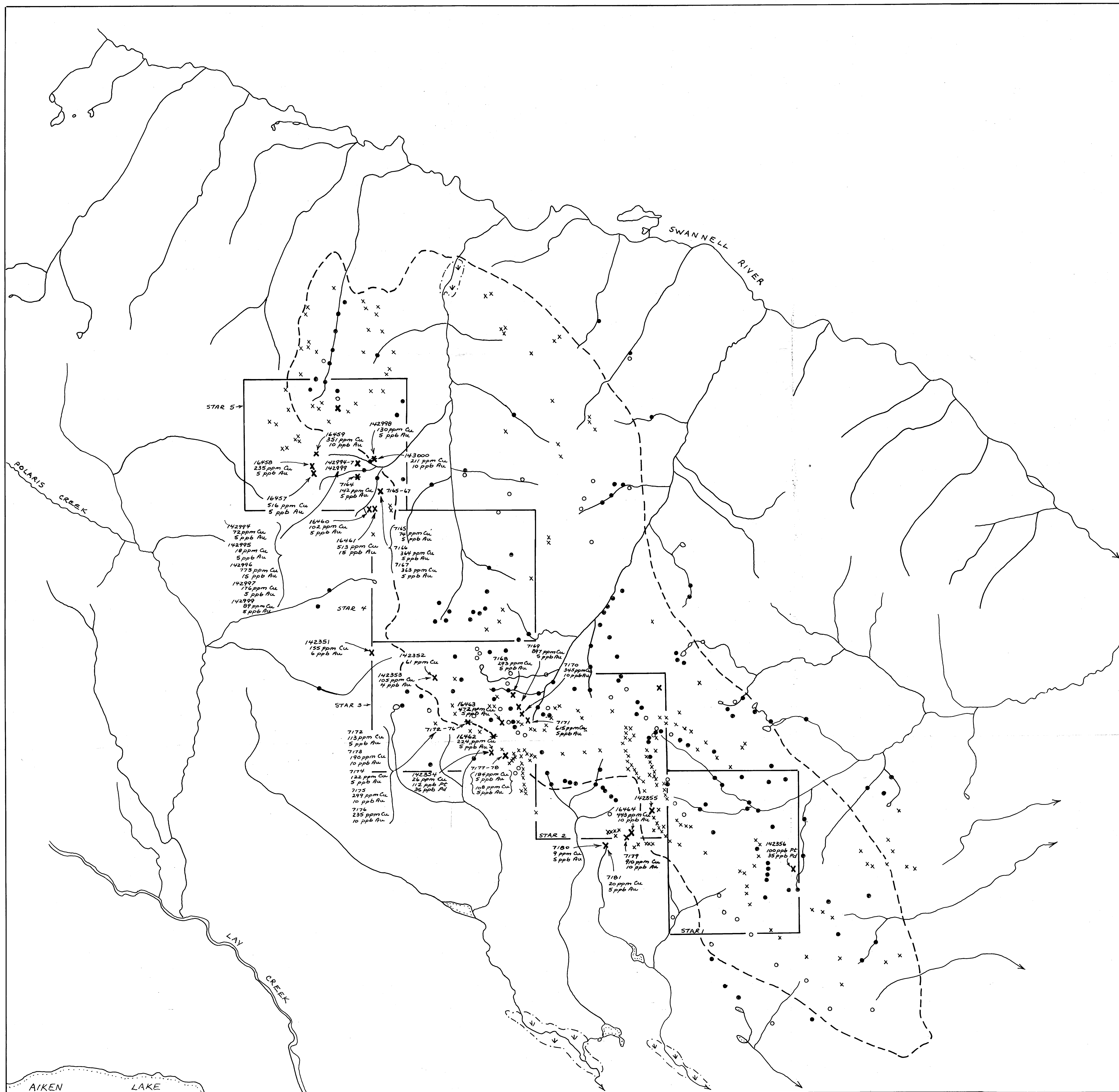
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GEOLOGY
 STAR CLAIMS



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- X₇₁₇₇ rock sample/sample number (1995)
- * silt/soil sample (1995)
- x rock sample (1987, 1988)
- silt sample (1987, 1988)
- soil sample (1987, 1988)

- STAR 5 claim boundary
- outline of ultramafic

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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SAMPLE SITES

STAR CLAIMS

1:25000

