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ASSESSMENT REPORT  
ON THE  
L-331, L-332 and L-333 CLAIMS

PHYSICAL, GEOCHEMICAL and GEOPHYSICAL

TAGLISH LAKE AREA  
LATITUDE 59° 23' N LONGITUDE 134° 18' W  
NTS 104M/9W  
ATLIN MINING DIVISION

BY

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GEOLOGICAL, GEOCHEMICAL and GEOPHYSICAL PROSPECTOR

RR1-B12-S11  
CHASE, BRITISH COLUMBIA  
JANUARY 1995

FILMED

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

23,960

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**INTRODUCTION** The L-331, L-332 and L-333 were staked on the 4th of July 1993 to cover a lithogeochemical anomaly (MM05-1) discovered by M.G.Mihalynuk in his historic regional geochemical survey (see fig.3) of Fantail Lake Open File 1989-13. The assay results for gold of sample (MM05-1) was 41,105 ppb and constituted a major new occurrence of gold on the west side of Taku Arm north of Buchan Creek opposite the Engineer Mine on the east side of the lake. The L-331 was located 180 meters south of Buchan Creek and staked contiguous to the north. All three claims are 2-post mineral claims. The claims are split by mapsheets 104M/8W and 104M/9W, which probably explains why the location of the showing is incorrectly spotted on mapsheet 104M/9W. From the 31st of July 1994 until the 31st of August 1994 physical, geochemical and geophysical surveys were conducted over L-331, L-332 and L-333. The M.Mihalynuk highgrade showing was located, sampled and gridded in addition to several lithogeochemical traverses. Several parallel vein structures were located, flagged and sampled. The strike length remains open at both ends. This is a major highgrade gold occurrence and warrants further investigation.

**PROPERTY and OWNERSHIP** The L-331, L-332 and L-333 are three 2-Post claims staked in the Atlin Mining Division, duly recorded in Atlin, B.C. on the 5th of July 1993. All three claims are 100% owned by Larry D. Lutjen; RR1-B12-S11; Chase, B.C.; V0E-1M0. The claim data is as follows:

Claim	No. of units	Record No.	Rec. Date
L-331	1	318707	4 July 1993
L-332	1	318708	4 July 1993
L-333	1	318709	4 July 1993

All works and fees have been paid and the properties are in good standing.

**LOCATION and ACCESS** The L-331, L-332 and L-333 are located in between the north/south mapsheet split of NTS 104M/8W and 104M/9W on Taku Arm of Taglish Lake British Columbia. The IP of L-331 is located 180 meters south of Buchan Creek and the claims being contiguous extend north from the IP (see fig. 2 & 4). Access is by boat or helicopter, there are no known roads to the property. Heavy equipment and supplies are barged from Carcross, Yukon down Taglish Lake to the Engineer Mine and all points north and south. Access is also available via the Atlin River from Atlin, B.C. but is limited to exploration equipment. The Engineer Mine is presently being operated and highgrade shipments of gold were extracted in 1994. Personal communications with Keith Lumsden indicates that an international consortium is in the process of setting up a mill at the Engineer Mine.

**HISTORY** The Engineer Mine vein system, located directly across Taku Arm from the L-331, L-332 and L-333, was first staked in 1899. Veins in the Whitemoose Mountain area were probably discovered at the same time. There has been no report of work on the L-331, L-332

and L-333 but work on the Whitemoose Claims to the immediate south of the L-331 group are reported by Cairnes in 1913. The Whitemoose Group includes two veins, called the North and South veins. The North vein was covered by five claims along the shore of Taku Arm, while the South vein was covered by three claims extending northwest from the southern most claims on the North vein. Cairnes reported that "outcrops that are thought to all be portions of the same vein - the North vein - occur at intervals for a distance of over 5,000 feet, strike in a general direction of N40W, and dip to the northeast at angles ranging from 40 to 60 degrees (Cairnes, 1913, pg.993). The similarity of strike, dip and mineralogy suggest these are all exposures of the same vein. The vein was reported to vary from 0.45 to 1.2 meters in width and consist predominantly of massive but occasionally vuggy quartz. Argentiferous tetrahedrite, pyrite and chalcopyrite were the main ore minerals with minor galena and malachite noted. According to Cairnes, a small shaft was sunk at the most northerly exposure of the vein, on the shore of Taku Arm. Here the vein was reported to be 0.6 meters thick, and in places composed almost entirely of metalliferous minerals (tetrahedrite, chalcopyrite and galena with pyrite and malachite).

**PHYSIOGRAPHY** The L-331 group extends from the shore of Taku Arm (see fig. 1) at approximately 656 meters up mountainous terrane to the 800 meter level. The slopes are generally steep but gradually zone into a level bench above the lake shore, possible down drop block fault. The bush is generally dense and consists of vine alder, willow, devil's club and buck brush. Trees include Spruce, Fir, Alder, Cedar, Birch and many densely forested patches of Lodgepole Pine. Several glaciers occupy the upper elevations of Whitemoose Mountain and feed Buchanan Creek. Several small tarn lakes are found in the moraines below the glaciers. Low water levels of Taglish Lake in 1994 were the result of heavy releases for hydro electric power. The treeline is located at approximately 1,370 meters in the area with dense growths extending down slope.

**REGIONAL GEOLOGY** The L-331, L-332 and L-333 lie within the metamorphic terranes of the Coast Plutonic Complex that bound the Mesozoic strata of the Whitehorse Trough on the west (Bultman, 1979). In this region greenschist to amphibolite metamorphic rocks dominate the quartz diorite to granodiorite intrusives of the plutonic complex, referred to by Bultman as Coast Metamorphic Rocks. The L-331 Group lies entirely within these metamorphic and granitic rocks. Bultman (1979) states that this complex may also include some Lower or Mid-Paleozoic, and perhaps even some Precambrian rocks. Christie (1957) states that these rocks are mainly Pre-Permian as supported by GSC Open File 214. M.Mihalynuk maps these rocks as Paleozoic-Proterozoic Nisling Assemblages of amphibolitic gneiss and schist, Open File 1989-13. To the northwest it is believed that the Coast Plutonic rocks blend into the Yukon Crystalline Terrane and it is possible that the metamorphic rocks of the L-331 Group are also equivalent to the Yukon Crystalline Terrane. In the L-331 Group area, Taku Arm represents a fault or unconformity which separates the metamorphic rocks from the younger Laberge Group sediments that host the Engineer Mine vein systems.

Down drop blocks, folds and strike slip faulting expose carbonates, schists and gneisses that were originally formed at great depths. This trend is pervasive in the sediments exposed at Taku Arm and extends well beyond the Yukon border and follows the Lewellyen Fault. Cockfield (1932) recognized that most of the mineralization was occurring along a belt defined by the Lewellyen Fault.

**1994 EXPLORATION PROGRAM** On the 31th of July 1994 we setup base camp at Buchanan Creek as operational control for the geochemical and geophysical surveys (see fig. 6 & 7) on the L-331 group, which were completed on the 31st of August 1994. An outline of the program was as follows:

1. Lithogeochemical traverses over the L-331, L-332 and L-333.
2. Trenching on the highgrade showing (MM05-1).
3. Baseline and grids over L-332.
4. VLF/EM survey over baseline and grids.
5. Magnetometer survey over baseline and grid.
6. Follow-up lithogeochemical surveys over anomalies.

All of the work was performed by Larry D. Lutjen and his field assistant Geoffry Ogden.

**LITHOGEOCHEMICAL TRAVERSES** Two lithogeochemical traverses were surveyed from the 1st of August 1994 to the 10th of August 1994. The objectives of the two surveys were to locate old works, the Mihalynuk showing, mineralized quartz veins and fault structures. Ten lithogeochemical samples were taken on the traverses and there locations flagged (see fig. 4). The first lithogeochemical traverse was relatively flat on top of a bench that could have been a down drop block fault (?) related to the granodiorite intrusive (?) that was pervasive in the area. The only major fault structure on both traverses was Buchanan Creek which trends east/west and cuts both the metamorphic sediments and the granodiorite intrusive (?). No mineralized quartz veins were located on either traverse, but mineralized float was located on Buchanan Creek. No old works or the Mihalynuk showing were located on either traverse.

**TRENCHING ON THE HIGHGRADE SHOWING** On the 11th of August 1994 I located the Mihalynuk showing about 350 meters north of Buchanan Creek just west of the Taku Arm shore line. It was completely covered with Vine Alder and undistinguishable from the shoreline. I clued in to the area from some float that had been displaced eastwardly from the showing. It was closer to Buchanan Creek than was spotted on the Open File 1989-13 mapsheet, probably due to the north/south split on NTS mapsheets 104M/8W and 104M/9W. From the 11th of August until the 15th of August 1994 we bushed out the showing and cleaned out the sloughed in trench that M. Mihalynuk had sampled. We even found some of his orange flagging tied to one of the Vine Alders when we cut them out. We cleaned out the trench but not to depth because there was too much overburden. The cleaned out trench was approximately 2 meters wide and 5 meters long and the axis of the centerline of the trench was striking at 114 degrees. The north/ south walls were mapped from east to west as follows:

- 0.0 to 1.0 meters - is highly silicified hanging wall alteration with accessory pyrite and arsenopyrite. Cross cutting shear fractures at 60 degrees, with post mineral quartz filling. Weathered outcrops gray to green with orange rusty iron staining to the surface.
- 1.0 to 2.0 meters - is quite similar to above and still in the hanging wall. Massive quartz flooding and more intense fracturing of stockwork. Crosscutting quartz shear filling with accessory mineralization of pyrite and arsenopyrite.
- 2.0 to 3.0 meters - appears to alter into the ore zone with magnetite blebs along with the silicification and minor calcite veins. Mineralization is magnetite, pyrite and arsenopyrite. Silica is blue/gray with light white quartz and calcite fracture fillings.
- 3.0 to 4.0 meters - blue/gray quartz with magnetite, pyrite and arsenopyrite with minor calcite fracture filling. Still appears to be ore zone alteration, but am unable to positively identify the footwall. Very fractured with possibly some kink-banding and minor calcite filling.
- 4.0 to 5.0 meters - more hornblende with the silica and could indicate the footwall alteration. Minor calcite fracture filling plus magnetite and pyrite. The quartz is still blue/gray and mineralized and the slope of the back wall or west end of the trench is sluffing in and making it difficult to determine if this is definitely the footwall.
- Ore zone - the ore zone is a quartz healed breccia with massively mineralized phenocrysts of pyrite and arsenopyrite that are themselves rehealed with silica. The plagioclase in the ore zone has been altered to kaolinite that lends the characteristic orange/yellow argillite coloration. The breccia is drusy and contained several quartz vugs. Best assays were 45 and 17 grams per ton gold.

The assay results confirmed the Mihalynuk sample MM05-1 and document beyond a shadow of a doubt the value of regional work done by the Mineral Resources Division and their hard working associates like Mitch Mihalynuk, R.L.Arksey, Kieth Mountjoy, L.D.Currie and C.A.Wallace.

**BASELINE AND GRIDS OVER L-332** was constructed from the 16th of August 1994 until the 18th of August 1994. First we established a baseline (00E+00N to 00E+125N) and then at 25 meter intervals we ran gridlines east and west (00E+100W & 80E to 00E+100W & 10E see fig. 4 & 5). The baseline was picketed, flagged, chained and corrected for slope variations and the gridlines were flagged and chained at 20 meter intervals to allow the VLF/EM data to be Fraser Filtered (D.C.Fraser 1969). All of the western gridlines were established but due to the lake shore, the eastern lines were cut short.

**VLF/EM SURVEY** was conducted from the 19th of August until the 21st of August 1994 to look for possible conductors such as fault contacts, mineralized deposits and geological structures (see fig. 6). The survey was done by L.Lutjen with a Sabre model 27 VLF/EM serial # 274 using Seattle, Washington at 18.6 Khz as the transmitting station. The VLF/EM method utilizes electromagnetic fields transmitted from radio stations in the 15 - 25 Khz range. The signals are propagated with the magnetic component of the field horizontal to the direction of propagation in undisturbed areas. Conductivity contrasts in the earth create secondary fields that produce a vertical component with changes in field strength, attitude and amplitude. These conductive areas are then located with the aid of a very delicate instrument, Sabre model 27, and evaluated by measuring the various parameters. A composite analysis of the survey is then done with a Fraser Filter plot (see fig.6). The Fraser Filter plot takes the sum and difference of four consecutive stations from west to east, on a north/south baseline, to plot and profile the secondary field dip angle. The resultant positive plots are proportional to the conductor that has generated the secondary field. The results of the survey were very favourable. They outlined a conductor open to the north and south with some high Fraser Filtered values that indicated a conductor buried at shallow depth with subsequent surface showings of mineralization. This proved to be the case by follow up lithogeochemical surveys over some of the geophysical anomalies that outlined additional mineralized areas (see Fig.5).

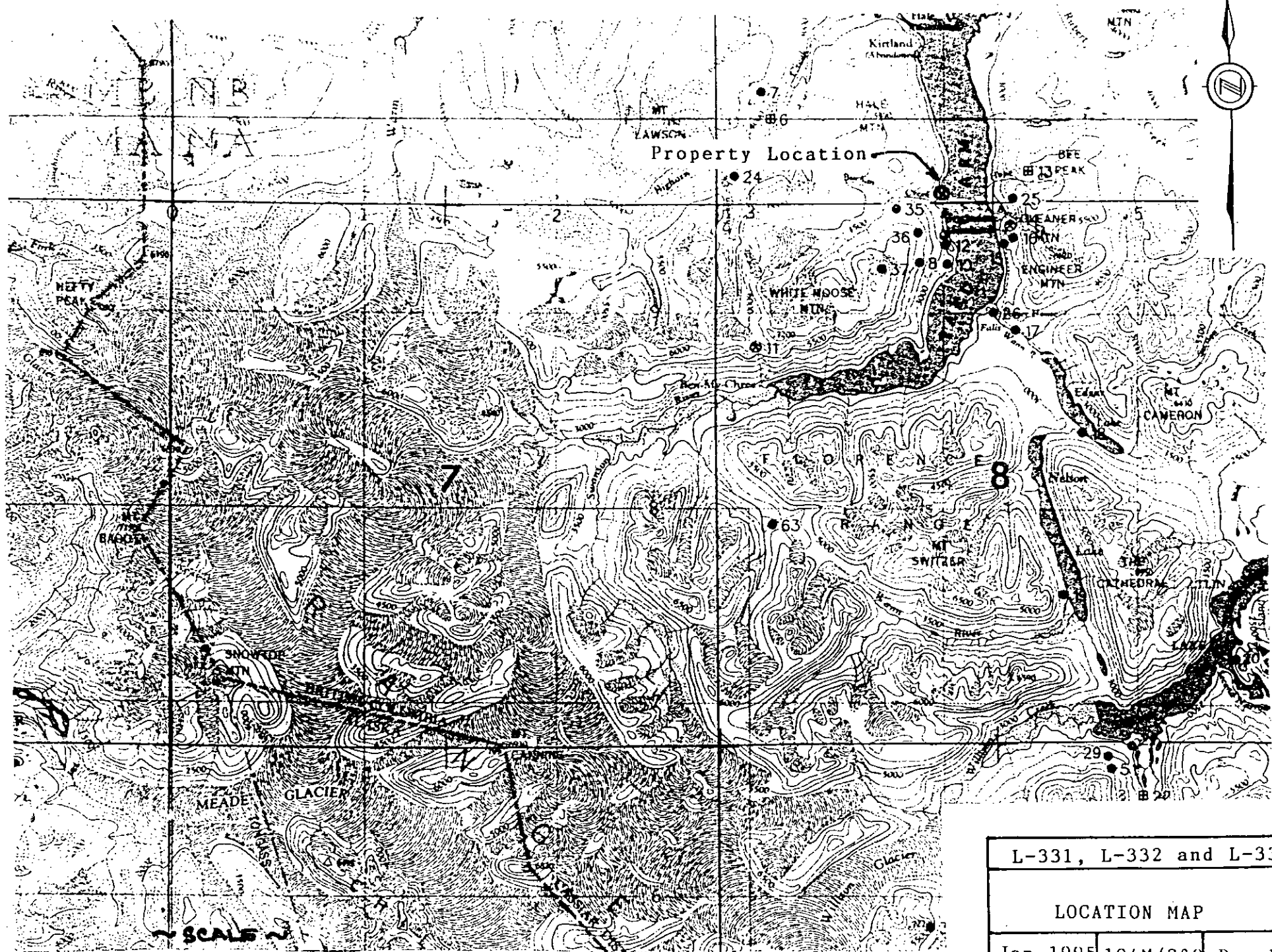
**MAGNETOMETER SURVEY** was done from the 22nd of August to the 24th of August 1994 to look once again for fault contacts, mineralized deposits and geological structures (see fig.7). The magnetometer survey was conducted by L.Lutjen using a Geometrics G-816/826A proton magnetometer serial # 6424. A magnetometer base station was maintained throughout the survey and all readings were corrected for diurnal shifts. The values were normalized by subtracting 56,000 gammas from each corrected station reading. This facilitated the contouring and all of the values were positive. For example station (00E+00N) is recorded 456 but was measured 56,456 gammas.

The Geometrics G-816/826A magnetometer is capable of measuring a 1 gamma difference in the earth's electromagnetic field. Changes in the total electromagnetic field at any one place in time can be generated by geological structures, metallic conductors and fault contacts. Metallic deposits that contain magnetic material such as magnetite will generally give you a magnetic high while deposits that have been remelted by volcanism will generally give you a magnetic low. The results of the magnetometer survey were also very favourable and outlined a possible metallic conductor open to the north and south. The conductor was in the same general position on the grid as the VLF/EM survey and follow up lithogeochemical sampling showed mineralization over the trend.

**FOLLOW-UP LITHOGEOCHEMICAL SURVEYS** were conducted from the 25th of August until the 31st of August 1994 to clear the debris and sample several of the geophysical anomalies (see fig.5). Several locations were selected, after computing some of the field data, to assess the mineral potential of these anomalies. Mineralization occurred in each of the surveys with gold values of 5.81 and 9.52 grams per ton gold representing the highs.

**CONCLUSIONS** are that the L-331, L-332 and L-333 claims represent an exciting new discovery in the Engineer Camp and it is recommended that the baseline and grid systems be expanded to extend the strike length of the deposit. That the geophysical surveys be extended to cover the additional grids including fill-in grids. That a self-potential survey be done over the entire grid to determine the surface expression of the deposit. That lithogeochemical samples be taken from all anomalous showings. And finally that trenching should be done to outline the vein structures, map the showings and assay the results.





L-331, L-332 and L-333

LOCATION MAP

Jan 1995 104M/8&9 Dwn:LDL

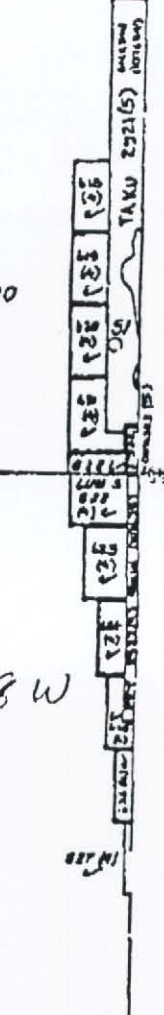
ATLIN 1:318,181 Fig.1

0 km 10 km 20 km 30 km

Kirtland

(Legend) ad

TAGISH  
TAKU  
ARM  
LAKE



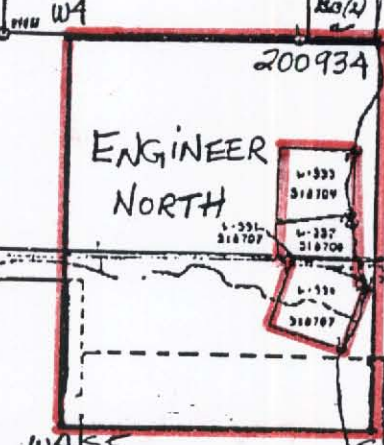
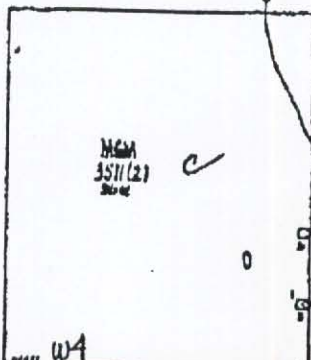
83

A 11379

BC 5677

104M/9W

HALE MTN.



L.C.P.

200934

A 11390

BC 5677

380

53

Creek

ICE 3  
3542(3)  
M.S.



RICE  
3543(2)  
M.S.

104M/8W

Bucha

ICE 1  
2505(B)  
M.S.

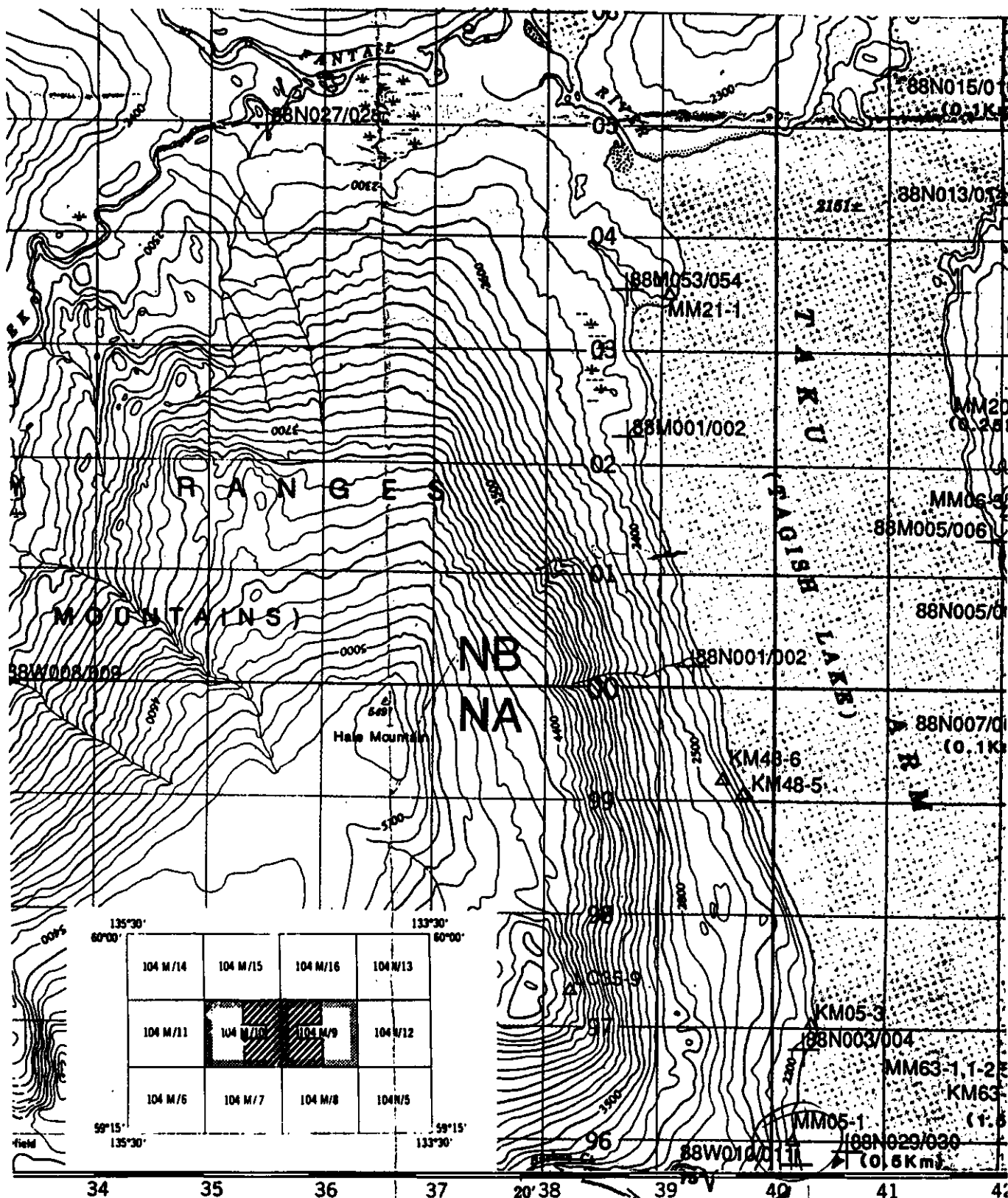
ICE 2  
3536(2)  
M.S.

WHITE MOOSE  
MTN.

FEE 1  
810(10)  
M.S.

ICE 5  
3567(2)  
M.S.

ENGINEER NORTH		
CLAIM MAP		
Jan 95	104M/9&8	Dwn:LDL
ATLIN	1:50,000	Fig.2



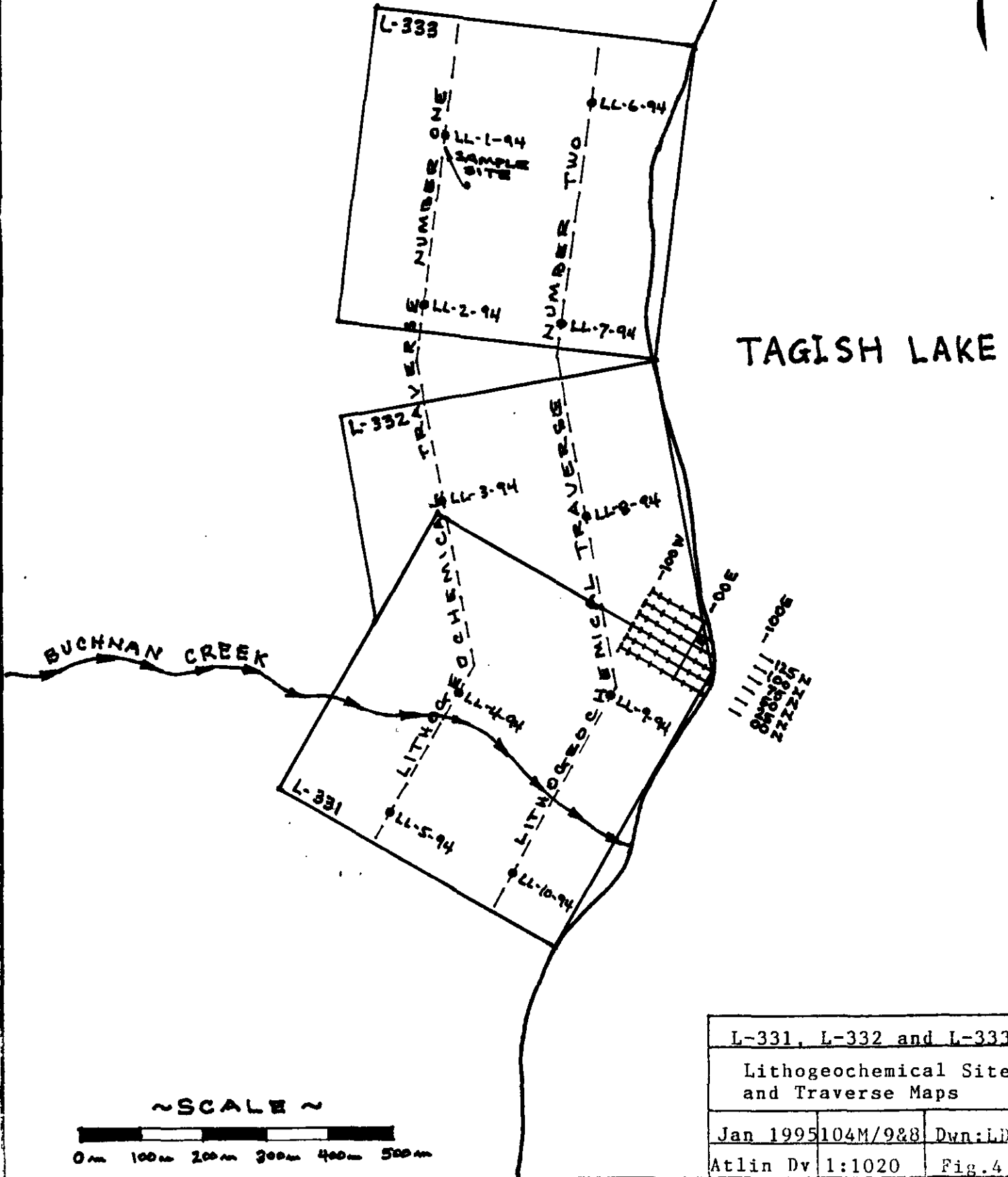
135°30'		133°30'		
60°00'	104 M/14	104 M/15	104 M/16	104 M/13
104 M/11	104 M/10	104 M/9	104 M/12	
59°15'	104 M/6	104 M/7	104 M/8	104 M/5
135°30'			133°30'	59°15'

*Historic Sample Location*

L-331, L-332 and L-333		
OPEN FILE 1989-13		
FANTAIL LAKE & WARM CREEK		
Jan 1995	104M/9&8	Dwn:LDL
ATLIN	1:50,000	Fig.3



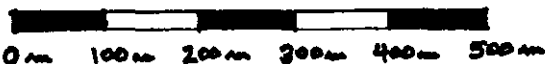
Note: All lithogeochemical samples  
LL-1-94 thru LL-10-94 are as follows:  
megacrystic quartz/hornblende granodiorite.



TAGISH LAKE

BUCHANAN CREEK

~SCALE~



L-331, L-332 and L-333		
Lithogeochemical Site and Traverse Maps		
Jan 1995	104M/9&8	Dwn:LDL
Atlin Dv	1:1020	Fig.4

TAGLISH LAKE

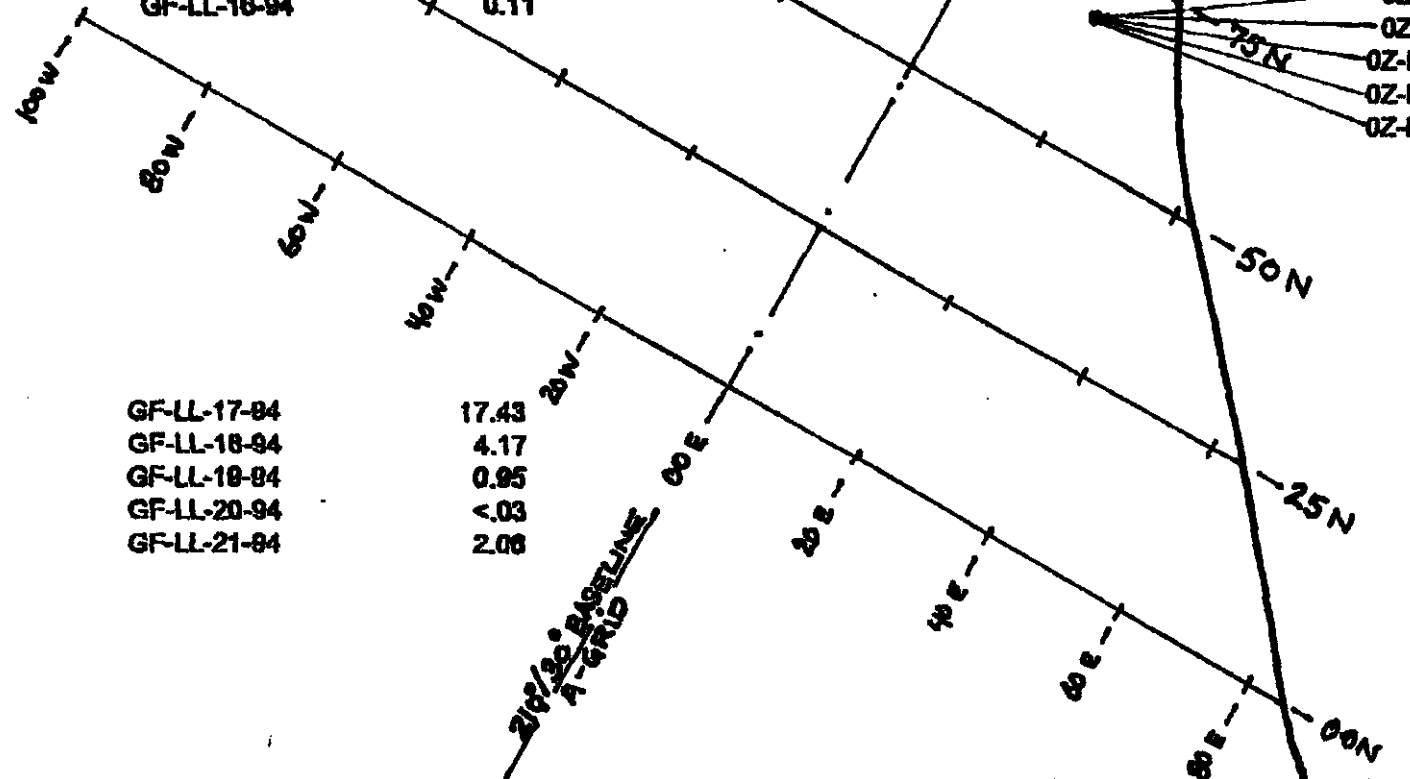


Tag #	Au (g/l)
OZ-LL-1-94	45.80
OZ-LL-2-94	<.03
OZ-LL-3-94	3.15
OZ-LL-4-94	<.03
OZ-LL-5-94	<.03
OZ-LL-6-94	<.03
OZ-LL-7-94	<.03
OZ-LL-8-94	<.03
OZ-LL-9-94	<.03
OZ-LL-10-94	<.03
OZ-LL-11-94	0.04
OZ-LL-12-94	<.03
GF-LL-1-94	<.03
GF-LL-2-94	<.03
GF-LL-3-94	0.90
GF-LL-4-94	2.74
GF-LL-5-94	5.81
GF-LL-6-94	1.14
GF-LL-7-94	1.81
GF-LL-8-94	1.13
GF-LL-9-94	9.52
GF-LL-10-94	0.41
GF-LL-11-94	0.13
GF-LL-12-94	4.08
GF-LL-13-94	<.03
GF-LL-14-94	1.52
GF-LL-15-94	<.03
GF-LL-16-94	0.11

GF-LL-1-94
GF-LL-2-94
GF-LL-3-94
GF-LL-4-94
GF-LL-5-94
GF-LL-6-94
GF-LL-7-94
GF-LL-8-94
GF-LL-9-94
GF-LL-10-94
GF-LL-11-94

GF-LL-12-94
GF-LL-13-94
GF-LL-14-94
GF-LL-15-94
GF-LL-16-94
GF-LL-19-94
GF-LL-20-94
GF-LL-21-94
GF-LL-17-94
GF-LL-18-94
OZ-LL-1-94
OZ-LL-2-94
OZ-LL-3-94
OZ-LL-4-94
OZ-LL-5-94
OZ-LL-6-94
OZ-LL-7-94
OZ-LL-8-94
OZ-LL-8-94
OZ-LL-9-94
OZ-LL-10-94
OZ-LL-11-94
OZ-LL-12-94

GF-LL-17-94	17.43
GF-LL-18-94	4.17
GF-LL-19-94	0.95
GF-LL-20-94	<.03
GF-LL-21-94	2.08



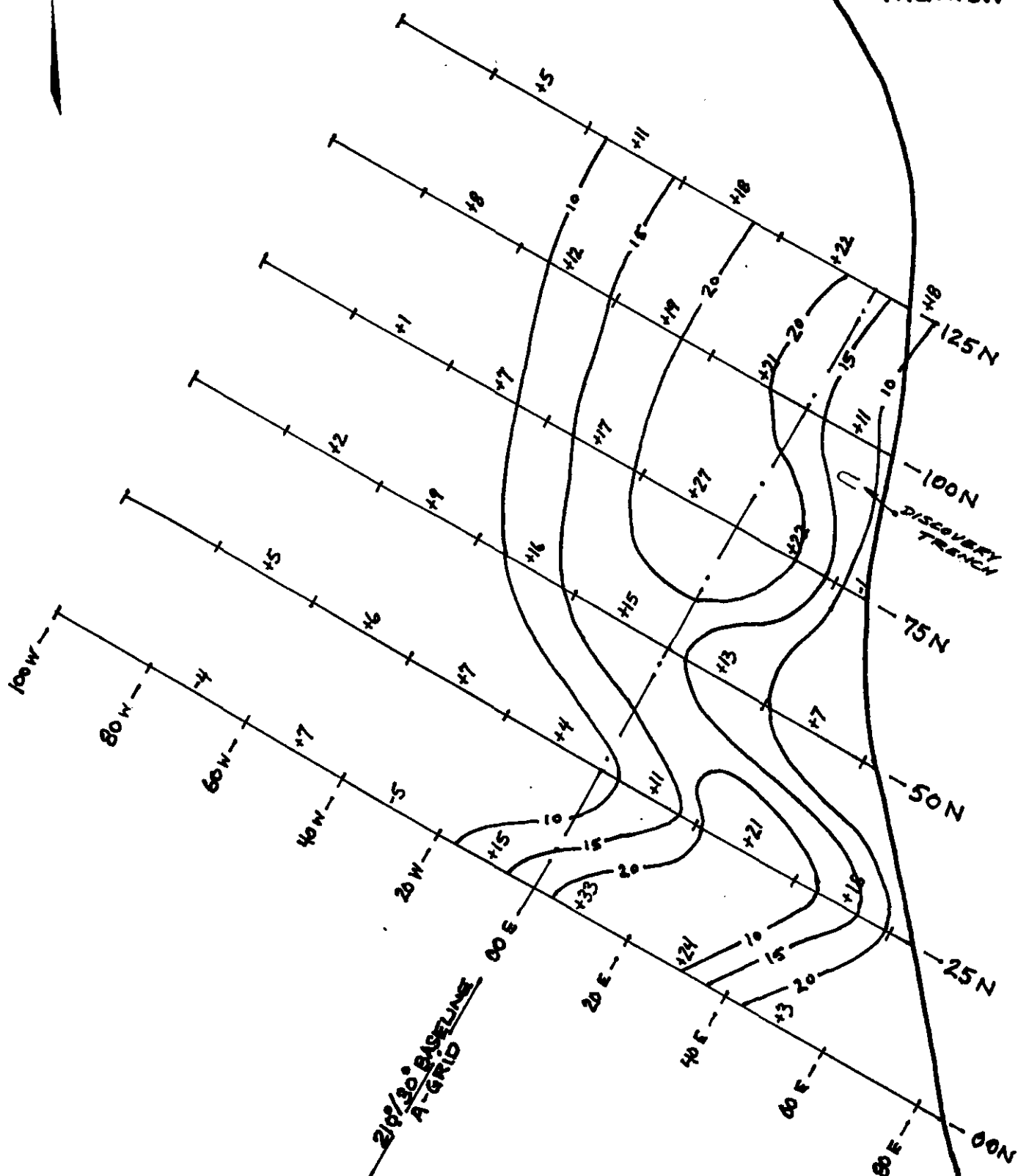
~SCALE~



L-331, L-332 and L-333		
Grid and Sample Map		
Jan 1995	104M/829	Dwn:LDL
AtlinDv	1:1020	Fig. 5



TAGLISH LAKE



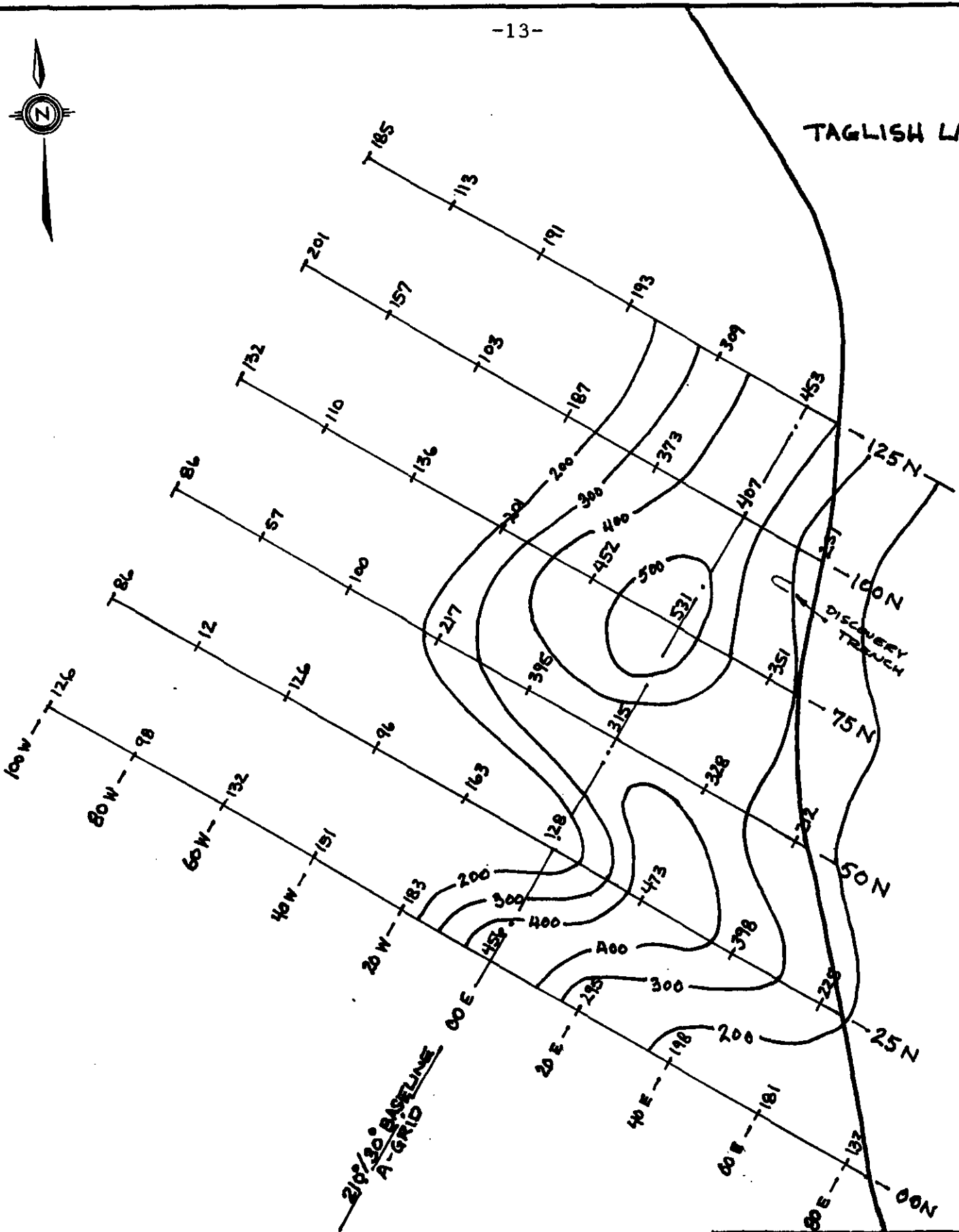
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L-331, L-332 and L-333		
VLF/EM Survey		
Jan1995	104M/8&9	Dwn:LDL
Atlin Dv	1:1020	Fig.6



TAGLISH LAKE



~ SCALE ~



L-331, L-332 and L-333

MAGNETOMETER Survey

Jan 1995 104M/8&9 Dwn:LDL

Atlin Dv 1:1020 Fig.7

### Statement Of Qualifications

I **LARRY D. LUTJEN** of Rural Route No. 1, Post Office Box 12; Chase, British Columbia; having graduated from the College of San Mateo (U.S.) in 1965 with a degree in Electronics, did my post graduate work at the University of California (Berkley) in 1966, and received my teaching credentials from Merrit College in 1967. I taught Electronics for the United States Navy at the Naval Air Station in Alameda California from 1962 to 1969. The following is a synopsis of my work experience in the mining industry:

**1958-1962** Surface and subsurface mining on the Hard Quartz claim, Adin Mountain, California including drilling, blasting, timbering, and highgrading.

**1963-1969** Prospecting with John Harden on the Warner Range (Calif), Lovelock plateau (Nevada), and Shieffer Mountain (Calif) for gold, silver, mercury, tungsten, copper, lead, and zinc. We staked several claims in California and Nevada.

**1972-1976** Geophysical prospecting in the Scotch Creek area using a Sharpe SE 600 horizontal and vertical loop on VLF and self potential surveys. We staked several claims including the Silver King and the Silver Queen.

**1977-1980** Geophysical and geochemical surveys in the Shuswap Lake and Adams Plateau with a McPhar 800 vertical field magnetometer and B horizon sampling. Geophysically surveyed the Lost Cabin Mine on Shieffer Mountain California resulting in an option to Lorcan Resources Ltd.

**1982-1983** Received my geophysical certification from the British Columbia Ministry of Mines and Malasapina College. Geophysical survey for Aurun Minerals Ltd. on Ground Hog Basin using a Geonics 816-G Proton Magnetometer and an EM-16 VLF/EM, including geochemical sampling of the B horizon, geophysical mapping, and grid layout. Geochemical sampling of the B horizon and geological surveying for Tylox Resources Ltd. on the Au-1 and Au-2 claims in the Monashee Pass area British Columbia.

**1983-1984** Geophysical survey for MacKenzie Range Gold Inc. on the Golden Eagle Project using a Sabre Model 27 VLF/EM, Scintrex MF-2, and S.P. potential difference surveying. Geophysical and geochemical survey for MacKenzie Range Gold Inc. on the Golden Quartz Project Adin Pass California using a Scintrex Fluxgate Magnetometer MF-2, Sabre Model 27, and S.P. potential difference evaluations.

**1984-1985** 80km of geophysical and geochemical surveys for Barnes Creek Minerals Corporation on the Golden Eagle Project including mapping, profiles, contours and interpretation. Geophysical assessment report for Mr. M. Riley on the Otto claims on the Adams Plateau, British Columbia. 30km of geophysical and geochemical surveys for Noranda Exploration Ltd. on the Birk Creek Project. 10km of geochemical and geophysical surveys for Noranda Exploration Ltd. on the London Ridge Project. All projects sampled the B horizon and used a Scintrex MF-2, Sabre Mod. 27, and potential difference sampling.

**1985-1986** Assessment report, geochemical, and geophysical surveys (30km) for Barnes Creek Minerals Corporation on the Golden Loon Project Little Fort, B.C. 30km of geophysical and geochemical



surveys for Lacana Mining Corporation on the Comstock Project (optioned to Lacana by L.Lutjen) Adams Plateau, B.C.. Assessment reports on the Golden Eagles I & II (40 units), Silver Weasel 1 & 2 (40 units), and Golden Loons 1-9 (176 units) for Barnes Creek Minerals Corporation. All projects sampled the B & C horizons and used a Scintrex MF-2, Geonics 816-G, Sabre Mod. 27, and S.P. potential difference surveying.

1986-1987 50km of geophysical and geochemical surveys for Mineta Resources Ltd. on the Golden Loon Project (optioned to Mineta) Little Fort, B.C.. 10km of geophysical surveys for Barnes Creek Minerals Corporation on the Platinum Giant Project, Salmon Arms British Columbia. 20km of geochemical and geophysical surveys for Westwego Resources Ltd. on the Lost Cabin Project (optioned to Westwego Resources Ltd.) Shieffer Mountain California. Assessment reports for Barnes Creek Minerals Corporation on the Golden Eagles I & II (40 units), Golden Popes (80 units), and Golden Skarns 1 & 2 (40 units). All projects sampled the B & C horizons and used a Scintrex MF-2, Geonics 816-G, Sabre Mod. 27, and S.P. potential difference surveying.

1987-1988 10km of geophysical and geochemical surveys for Souix City Resources Ltd. on the King George Claims, Kettle River British Columbia. 10km of geophysical surveys for Westwego Resources Ltd. on the Lost Cabin Project, Shieffer Mountain California. Assessment reports for Barnes Creek Minerals Corporation on the Golden Skarns (40 units), Lost Lightning Peak Mine (20 units), Golden Popes (40 units), Platinum Giant Project (40 units), and Golden Eagles (40 units). 40km of geochemical and geophysical surveys for Mineta Resources Ltd. on the Golden Loon Project (optioned to Mineta). All projects sampled the B & C horizons and used a Scintrex MF-2, Geonics 816-G, Sabre Mod. 27, and S.P. potential differences.

1988-1989 10km of geochemical and geophysical surveys for Westwego Resources Ltd. on the Lost Cabin Group (optioned to Westwego). 7.5km of geophysical surveys with Corona Corporation on the Platinum Giant Project. Assessment reports on the Golden Eagles I & II (40 units), Golden Pope 1 & 2 (40 units), Lost Lightning Peak Mine (20 units), and Golden Skarn 1 & 2 (40 units). 10km of geophysical and geochemical surveys for Souix City Resources on the King George Project (76 units). 200 meters of diamond drilling (A-core) for Barnes Creek Minerals Corporation on the Golden Fiddler Project, Harris Creek British Columbia. All projects sampled the B & C horizons and used a Scintrex BGS-1SL, Scintrex MF-2, Geonics 816-G, S.P. potential differences, Sabre Mod. 27, and Boyles BBS-1 diamond drill.

1989-1990 100 meters of diamond drilling for Barnes Creek Minerals Corporation on the Golden Fiddler Project (20 units). 10km of geophysical and geochemical surveys on the Golden Eagles 1 & 2 (40 units) for Barnes Creek Minerals Corporation. 10km of geochemical surveys on the Golden Skarns 1 & 2 (40 units) for Barnes Creek Minerals Corporation. Assessment reports on the Platinum Giants 1 & 2 (40 units), Golden Popes 1 & 2 (40 units), Golden Stake 1 & 2 (40 units), Golden Fiddler (20 units), and King George Mine (76 units). All projects sampled the B & C horizons and used a Scintrex BGS-1SL, sabre Mod. 27, S.P. potential differences, Geonics 816-G, and Scintrex MF-2.

1990-1991 350 meters of diamond drilling (A-core) for Westwego Resources Ltd. on the Lost Cabin Project. 100 meters of diamond drilling (A-core) for Barnes Creek Minerals Corporation on the Golden Eagle 1 & 2 (40 units). 10km of geophysical and geochemical surveys for Barnes Creek Minerals Corporation on the King George Mine Project (76 units). Assessment reports on the Golden Eagles 1 & 2 (40 units), Lost Lightning Peak Mine (20 units), Golden Skarns (40 units), Golden Popes 1 & 2 (40 units), and Platinum Giants 1 & 2 (40 units). 5km of geochemical surveys for Barnes Creek Minerals Corporation on the Dixie Queen Project (33 claims), Adin Pass California. All projects sampled the B & C horizons and used a Scintrex BGS-1SL, Sabre Mod. 27, Boyles BBS-1, Geonics 816-G, S.P. potential differences, and Scintrex MF-2.

1991-1992 Assessment work surveys for Barnes Creek Minerals on the Golden Popes 1&2, King George Mine, Platinum Giants, BJ 1-4, Lost Cabin Mine, Dixie Queens and Golden Quartzs. Assessment work surveys for Pharlapp Resources Ltd. on the Why 1&2, GM 2 and GM 3, Sweep and Duffer. The surveys included geochemical sampling of the B and/or C horizons, VLF/EM surveys with a Sabre Mod.27, Mag surveys with a Geonics 816-G and a Scintrex MF-2 and SP potential differences.

1992-1993 Grassroots Prospecting for the Yukon Mining Incentive Program on the Bennett Range Project (NTS 105D/2), staked the Goldfinger 1-10 on finger Mountain Bennett Range, assessment work surveys for Barnes Creek Minerals Corp. on their California Project Dixie Queen, Lost Cabin Mine, Golden Quartz and Hess Gold Mine. Assessment work survey on the Lone Coyote Project NTS 82M/3. Assessment work survey on the Frank Hall Mine. The geophysical surveys were done with a Geonics 816G proton magnetometer, Scintrex MF-2 flux-gate magnetometer, a Sabre Mod. 27 VLF/EM and SP potential differences.

# MALASPINA COLLEGE

## Statement of Course Completion

LARRY D. LUTJEN

has

Successfully Completed 180 Hours of Instruction  
in

MINERAL EXPLORATION FOR PROSPECTORS

PRESENTED BY B.C. MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES  
B.C. MINISTRY OF EDUCATION

APRIL 16 to 30, 1983 - MESACHIE LAKE, B.C.

MAY 2, 1983

Dated at Nanaimo,  
British Columbia, Canada



*[Signature]*

Director / Dean

*[Signature]*

Registrar

*[Signature]*

Instructor



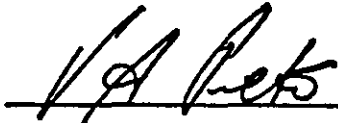
Province of British Columbia  
Ministry of Energy, Mines and Petroleum Resources

THIS IS TO CERTIFY THAT

LARRY D. LUTJEN

HAS SUCCESSFULLY COMPLETED  
PETROLOGY FOR PROSPECTORS COURSE

AND IS HEREBY GRANTED  
THIS CERTIFICATE OF ACHIEVEMENT

  
\_\_\_\_\_  
DIRECTOR OF  
PROSPECTORS' ASSISTANCE

TOM RICHARDS  
COURSE INSTRUCTOR  
April 1st - 9th, 1991

DATE

STATEMENT OF COSTS

Wages for L.Lutjen at \$100 per day for 36 days.....	\$ 3,600.00
Wages for Field Assistant at \$75 per day for 36 days.....	\$ 2,700.00
Food and Accommodations AT \$25 per day for 72 man days...	\$ 1,800.00
Transportation at \$0.38 per kilometer for 4,828 km.....	\$ 1,834.00
Assay Costs for 33 assays at \$15 per sample + GST.....	\$ 529.65
Field Supplies (gas, flagging, first-aid, etc.).....	\$ 453.45
Boat and Motor rental at \$950 per month for 1 month.....	\$ 950.00
Proton Magnetometer G-816 rental at \$330 per month.....	\$ 330.00
VLF/EM Sabre 27 rental at \$315 per month for 1 month.....	\$ 315.00
Report Preparation at \$100 per day for 3 days.....	\$ 300.00
	<hr/>
<b>TOTAL</b>	<b>\$12,812.10</b>

BIBLIOGRAPHY

- MEMPR assessment report # 8384
- GSC mem #37, pp. 93 & 94
- MEMPR AR 1901, pp. 985
- MEMPR AR 1904, pp. 81
- MEMPR AR 1918, pp. 93
- MEMPR AR 1933, pp. 82
- GSC map #19-1957
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- GSC map 1418A
- MEMPR Open File 1989-13
- Bultman, T. Phd Thesis on Whitehorse Trough West of Atlin
- Cairnes, D. GSC Memoir 37
- Christie, R. Bennett, Cassiar District
- GSC Open File 214
- GSC Memoir 74
- GSC Summary Report 1930, pp. 11 & 15
- GSC Economic Geology Series #1, pp. 268
- GSC Economic Geology Series #10, pp. 33-38
- GSC Economic Geology Series #15, pp. 11
- GSC Geology Bulletin #5, pp. 15-15 & 21-22
- Schroeter Bennett Project (104M)



GEOCHEMICAL LABORATORY METHODS

SAMPLE PREPARATION

1. Soil or sediment samples are dried at 60°C, the lumps of soil are broken up on a bucking board and the entire sample is sieved through an 80 mesh screen.
2. Rock samples are crushed and pulverized to -100 mesh.

GEOCHEMICAL ANALYSIS FOR Cu, Pb, Zn, Ag, Sb, Ni, Co, Cd

1.0 gram of sample is leached in 3 ml HNO<sub>3</sub> overnight at room temperature. The sample is brought up to 90°C in a water bath, 1.5 ml HCl is added, and the leaching is continued for a further 90 minutes. The sample is then cooled, diluted to 10 ml with distilled water and the above elements are determined by Atomic Absorption.

Minimum Reportable Concentrations

<u>Element</u>	<u>ppm</u>
Cu	1.
Pb	2.
Zn	1.
Ag	0.2
Sb	1.
Ni	2.
Co	2.
Cd	0.02

GEOCHEMICAL ANALYSIS FOR Au

The gold is collected in a silver bead through inquartation and conventional fire assaying of 10 grams of material. The bead is digested in aqua regia in a water bath at 90°C, the gold is then extracted into MIBK and determined by Atomic Absorption.

Minimum Reportable Concentration 5 ppb

GEOCHEMICAL ANALYSIS FOR As

0.25 gram of sample are taken to dryness in a mixture of  $\text{HNO}_3$  and  $\text{HClO}_4$ . Excess  $\text{HNO}_3$  is expelled with  $\text{HCl}$  and the arsenic is scrubbed into a solution of pyridine and SDDC to be determined colorimetrically on a spectrophotometer.

Minimum Reportable Concentration                      1 ppm

GEOCHEMICAL ANALYSIS FOR TUNGSTEN

Sample is fused with potassium persulfate then extracted into 10 ml hydrochloric acid. 2 ml of the clear supernatant is reduced with 2 ml 10% stannous chloride and reacted with 1 ml 1% ZincDithiol/Isoamyl acetate. The test solution is heated 4 to 6 hours in a water bath maintained at  $90^\circ\text{C}$ . The test solution is then cooled and 1 ml petroleum spirit is added to dissolve the globule containing the dithiol-tungsten complex. The color intensity of the tungsten complex is compared to a series of tungsten standards.

Minimum Reportable Concentration                      1 ppm



SAMPLE PREPARATION

A. RECEIVING AND SORTING

1. Each lot shipment of samples received will be assigned a unique job number by the Chief Assayer. This number together with the following information is to be entered in pen (not pencil) into the sample log book:
  - Job number
  - Client name and address
  - Date and time received
  - Names of individuals to receive results
  - Name of person receiving samples
  - Analyses required
  - Type of sample (ie. Core, Soil, Chip - Assay or Geochem)
2. Organize sample bags on a sorting table, so that sample tags or bag markings are in a logical alphanumerical sequence as indicated on sample shipment form submitted by client.
3. Enter the sample description into the log book and assign a lab number to each sample. Each lab number that has been assigned must also be marked on the sample bag using a felt pen.
4. Using the numbering stamp, mark the sample pulp bags with the lab number preceded by the assigned number.



ASSAYING  
GEOCHEMISTRY  
ANALYTICAL CHEMISTRY  
ENVIRONMENTAL TESTING

10041 E. Trans Canada Hwy., R.R. #2, Kamloops, B.C. V2C 2J3 Phone (604) 573-5700  
Fax (604) 573-4557

## CERTIFICATE OF ASSAY ETK 94-981

BARNS CREEK MINERAL CORPORATION  
RR#1, BOX 36  
CHASE, B.C.  
VOE IMO

1-Dec-94

ATTENTION: LARRY D. LUTJEN

33 ROCK samples received November, 1994  
Project No. #: G. F. PROJECT-1994

ET #.	Tag #	Au (g/t)	Au (oz/t)	Ag (g/t)	Ag (oz/t)
1	OZ-LL-1-94	45.80	1.336	52.3	1.53
2	OZ-LL-2-94	<.03	<.001		
3	OZ-LL-3-94	3.15	0.092	46.4	1.35
4	OZ-LL-4-94	<.03	<.001		
5	OZ-LL-5-94	<.03	<.001		
6	OZ-LL-6-94	<.03	<.001		
7	OZ-LL-7-94	<.03	<.001		
8	OZ-LL-8-94	<.03	<.001		
9	OZ-LL-9-94	<.03	<.001		
10	OZ-LL-10-94	<.03	<.001		
11	OZ-LL-11-94	0.04	0.001		
12	OZ-LL-12-94	<.03	<.001		
13	GF-LL-1-94	<.03	<.001		
14	GF-LL-2-94	<.03	<.001		
15	GF-LL-3-94	0.90	0.028		
16	GF-LL-4-94	2.74	0.080		
17	GF-LL-5-94	5.81	0.169		
18	GF-LL-6-94	1.14	0.033		
19	GF-LL-7-94	1.81	0.053		
20	GF-LL-8-94	1.13	0.033		
21	GF-LL-9-94	9.52	0.278		
22	GF-LL-10-94	0.41	0.012		
23	GF-LL-11-94	0.13	0.004		
24	GF-LL-12-94	4.09	0.119		
25	GF-LL-13-94	<.03	<.001		
26	GF-LL-14-94	1.52	0.044		
27	GF-LL-15-94	<.03	<.001		
28	GF-LL-16-94	0.11	0.003		

*Bob Menon*  
per Frank J. Pezzotti, A.Sc.T.B.C. Certified Assayer

BARNS CREEK MINERAL CORPORATION ETK 94-981

1-Dec-94

ET #.	Tag #	Au (g/t)	Au (oz/t)
29	GF-LL-17-94	17.43	0.508
30	GF-LL-18-94	4.17	0.122
31	GF-LL-19-94	0.95	0.028
32	GF-LL-20-94	<.03	<.001
33	GF-LL-21-94	2.06	0.060

XLS/KMISC7

*Bob Niven*  
per **ECO-TECH LABORATORIES LTD.**  
Frank J. Pezzotti, A.Sc.T.  
B.C. Certified Assayer

1-Dec-94

ECO-TECH LABORATORIES LTD.  
10041 East Trans Canada Highway  
KAMLOOPS, B.C.  
V2C 2J3

Phone: 604-573-5700  
Fax : 604-573-4557

BARNS CREEK MINERAL CORPORATION ETK 94-981  
RR#1, BOX 36  
CHASE, B.C.  
V0E 1M0

ATTENTION: LARRY D. LUTJEN

33 ROCK samples received November 29, 1994  
Project No. #: G. F. PROJECT-1994

Values reported in ppm unless otherwise indicated

Et #.	Tag #	Ag	Al %	As	Ba	Bi	Ca %	Cd	Co	Cr	Cu	Fe %	La	Mg %	Mn	Mo	Na %	Ni	P	Pb	Sb	Sn	Sr	Ti %	U	V	W	Y	Zn
1	OZ-LL-1-94	>30	0.83	115	25	5	2.00	<1	12	120	24	2.03	<10	0.56	490	<1	<0.1	23	520	4	15	<20	73	0.18	<10	55	<10	4	27
2	OZ-LL-2-94	<2	2.97	10	85	15	1.90	<1	24	79	30	4.25	<10	0.86	392	<1	0.11	66	980	14	<5	<20	64	0.34	<10	125	<10	11	51
3	OZ-LL-3-94	>30	0.41	20	15	<5	> 15	<1	5	115	9	0.92	<10	0.29	628	5	<0.1	13	480	<2	10	<20	10	0.06	<10	20	<10	<1	13
4	OZ-LL-4-94	0.4	0.79	15	15	<5	0.32	<1	8	30	14	1.73	<10	0.49	258	10	<0.1	23	70	4	<5	<20	10	0.03	<10	29	<10	<1	20
5	OZ-LL-5-94	<2	2.40	10	75	10	1.54	<1	23	101	54	4.19	<10	1.23	362	<1	0.15	56	1590	8	<5	<20	182	0.16	<10	133	<10	13	66
6	OZ-LL-6-94	<2	5.02	<5	370	5	4.64	<1	33	74	70	6.35	<10	2.66	893	<1	0.08	47	1520	12	15	<20	41	0.13	<10	200	10	11	83
7	OZ-LL-7-94	<2	3.38	<5	120	<5	6.21	<1	33	68	58	5.93	<10	2.07	1446	<1	0.05	51	1670	8	15	<20	22	0.01	<10	148	<10	8	76
8	OZ-LL-8-94	<2	2.96	5	45	<5	> 15	<1	22	33	41	4.14	<10	1.91	1668	<1	<0.1	53	1460	6	15	<20	4	<0.1	<10	82	10	5	49
9	OZ-LL-9-94	<2	0.87	<5	135	10	0.61	<1	6	19	3	1.83	10	0.27	338	<1	0.05	4	580	8	<5	<20	63	0.12	<10	38	<10	14	42
10	OZ-LL-10-94	0.4	2.57	<5	60	<5	1.25	<1	9	10	12	1.82	20	1.10	332	<1	0.02	8	270	22	10	<20	23	0.02	<10	26	<10	18	34
11	OZ-LL-11-94	<2	0.55	<5	55	5	0.34	<1	7	42	4	2.24	10	0.25	353	<1	0.04	3	650	6	<5	<20	22	0.12	<10	39	<10	13	57
12	OZ-LL-12-94	<2	0.55	<5	45	5	0.30	<1	7	58	4	2.44	20	0.23	294	<1	0.04	6	670	6	<5	<20	18	0.11	<10	40	<10	19	57
13	GF-LL-1-94	1.8	0.36	50	40	<5	0.15	<1	4	96	14	1.84	<10	0.07	147	7	<0.1	7	460	28	<5	<20	4	0.04	<10	6	<10	9	32
14	GF-LL-2-94	9.4	0.21	10	10	<5	0.09	<1	<1	30	3	0.38	<10	<0.1	37	6	<0.1	8	10	52	<5	<20	7	<0.1	<10	3	<10	<1	6
15	GF-LL-3-94	11.0	0.28	10	15	<5	0.15	<1	<1	11	6	0.43	<10	0.01	36	34	<0.1	5	50	22	<5	<20	21	<0.1	<10	3	<10	<1	6
16	GF-LL-4-94	8.4	0.17	10	15	<5	0.03	<1	1	75	6	0.69	<10	<0.1	47	5	<0.1	13	70	36	<5	<20	12	<0.1	<10	3	<10	<1	8
17	GF-LL-5-94	14.4	0.61	25	20	<5	0.44	<1	1	16	20	0.67	<10	0.01	60	40	<0.1	5	130	66	<5	<20	55	0.02	<10	3	<10	2	12
18	GF-LL-6-94	3.4	0.16	10	15	<5	0.04	<1	<1	15	3	0.63	<10	<0.1	41	2	<0.1	11	70	36	<5	<20	9	<0.1	<10	3	<10	<1	8
19	GF-LL-7-94	1.6	0.53	25	30	<5	0.18	<1	3	86	30	1.45	<10	0.10	239	17	<0.1	5	330	38	<5	<20	11	0.05	<10	8	<10	5	29
20	GF-LL-8-94	3.4	0.15	105	45	<5	0.39	<1	12	14	129	3.29	<10	0.14	359	47	<0.1	15	30	66	<5	<20	8	<0.1	<10	9	<10	<1	24
21	GF-LL-9-94	8.8	0.22	300	30	5	0.34	5	21	401	30	4.39	<10	0.06	142	6	<0.1	26	80	24	<5	<20	13	<0.1	<10	10	<10	<1	237
22	GF-LL-10-94	0.6	3.44	<5	65	<5	0.46	2	20	107	672	> 15	<10	1.63	774	<1	0.05	170	630	<2	<5	<20	26	0.11	<10	109	<10	<1	65
23	GF-LL-11-94	0.4	1.01	<5	135	<5	4.83	<1	36	83	210	5.21	<10	1.47	1723	2	0.02	15	570	8	10	<20	45	<0.1	<10	69	<10	3	63
24	GF-LL-12-94	3.0	0.19	85	50	<5	0.34	2	11	402	150	3.36	<10	0.12	241	8	<0.1	17	40	20	<5	<20	8	<0.1	<10	10	<10	<1	98
25	GF-LL-13-94	<2	2.46	<5	145	5	1.67	<1	28	115	104	6.27	<10	2.99	1204	<1	0.05	9	570	10	15	<20	34	0.14	<10	163	<10	4	103

Et #.	Tag #	Ag	Al %	As	Ba	Bi	Ca %	Cd	Co	Cr	Cu	Fe %	La	Mg %	Mn	Mo	Na %	Ni	P	Pb	Sb	Sn	Sr	Ti %	U	V	W	Y	Zn
26	GF-LL-14-94	2.6	0.31	195	30	<5	0.05	2	16	73	49	3.32	<10	0.01	45	23	<0.1	31	<10	40	<5	<20	3	<0.1	<10	10	<10	<1	64
27	GF-LL-15-94	1.2	1.16	5	60	<5	6.44	4	9	8	53	3.36	<10	1.79	1218	3	<0.1	18	220	44	15	<20	90	0.02	<10	9	<10	4	188
28	GF-LL-16-94	<2	2.75	<5	175	<5	2.26	<1	29	13	262	7.24	<10	2.88	1410	2	0.05	15	290	18	10	<20	57	0.02	<10	3	<10	<1	113
29	GF-LL-17-94	12.8	0.10	115	30	<5	0.12	2	13	92	76	3.41	<10	0.01	48	10	<0.1	22	<10	90	<5	<20	5	<0.1	<10	5	<10	<1	76
30	GF-LL-18-94	4.0	0.15	125	25	<5	0.10	7	14	88	214	3.17	<10	<0.1	51	30	<0.1	31	40	82	<5	<20	9	<0.1	<10	6	<10	<1	304
31	GF-LL-19-94	0.4	0.15	<5	80	<5	5.05	<1	15	47	155	3.45	<10	1.57	1432	5	<0.1	23	10	12	20	<20	50	<0.1	<10	23	<10	1	42
32	GF-LL-20-94	1.0	3.73	15	65	<5	0.33	4	9	51	67	> 15	<10	1.53	751	<1	0.02	24	520	6	<5	<20	14	0.09	<10	4	<10	<1	63
33	GF-LL-21-94	15.6	0.17	65	25	<5	0.19	1	15	88	15	4.32	<10	0.04	85	8	<0.1	18	580	54	<5	<20	3	<0.1	<10	5	<10	<1	16

**QC DATA:**

**Repeat:**

1	OZ-LL-1-94	>30	0.84	120	20	10	2.10	<1	12	120	26	2.06	<10	0.57	496	<1	<0.1	24	540	6	10	<20	71	0.18	<10	56	<10	5	28
<b>Standard 1991:</b>		1.4	1.73	80	165	<5	1.90	<1	21	66	88	4.28	<10	0.93	703	<1	0.02	24	690	24	<5	<20	57	0.12	<10	80	<10	5	76

XLS/Kmisc#7  
df/982

*Bob Mann*  
per **ECO-TECH LABORATORIES LTD.**  
Frank J. Pezzotti, A.Sc.T.  
B.C. Certified Assayer