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**BALLATAR EXPLORATIONS LTD.**

**GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL  
REPORT**

EH 1,3,5,6 AND 7 CLAIMS CLINTON M.D.  
BLACKDOME MT. AREA, B.C., N.T.S. 920/8W & 7E  
Lat. 51°16' N, Long. 122°30'W 31'41"

AUTHOR: MARKUS SEYWERD B.Sc. GEOPHYSICIST  
DATE OF WORK: June 29 - August 21, 1987  
DATE OF REPORT: November 30, 1987

Owner: Glen White  
Operator: Ballatar Explorations Ltd.

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**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**16,685**

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## INTRODUCTION

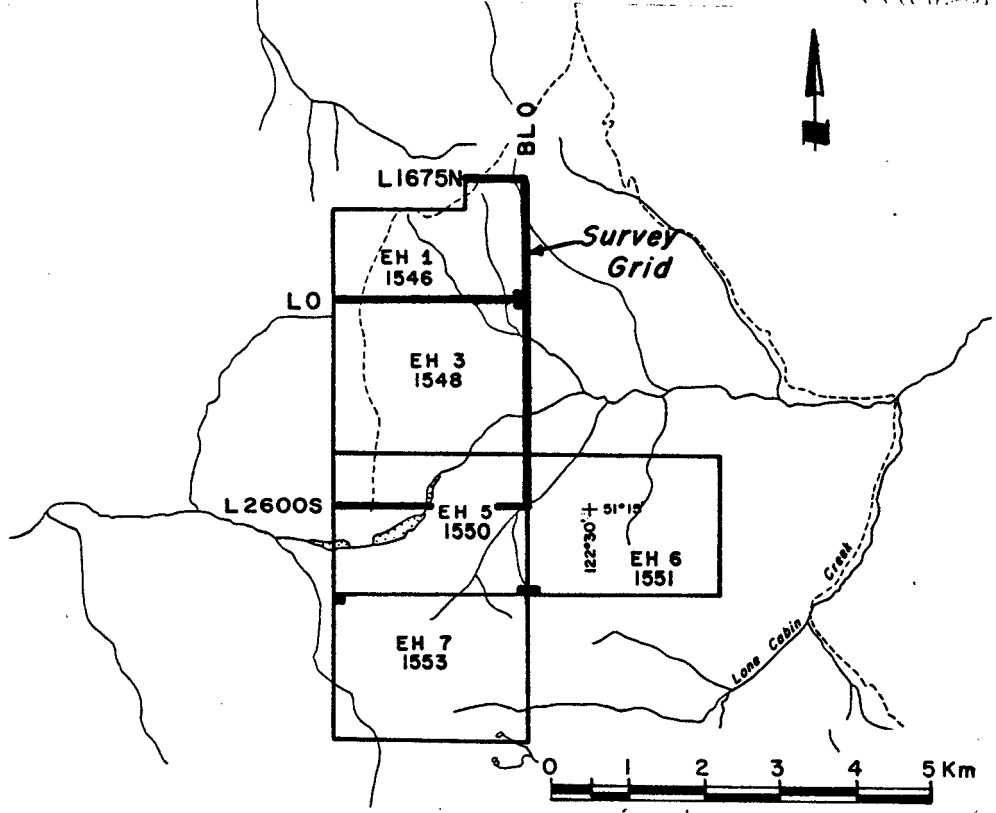
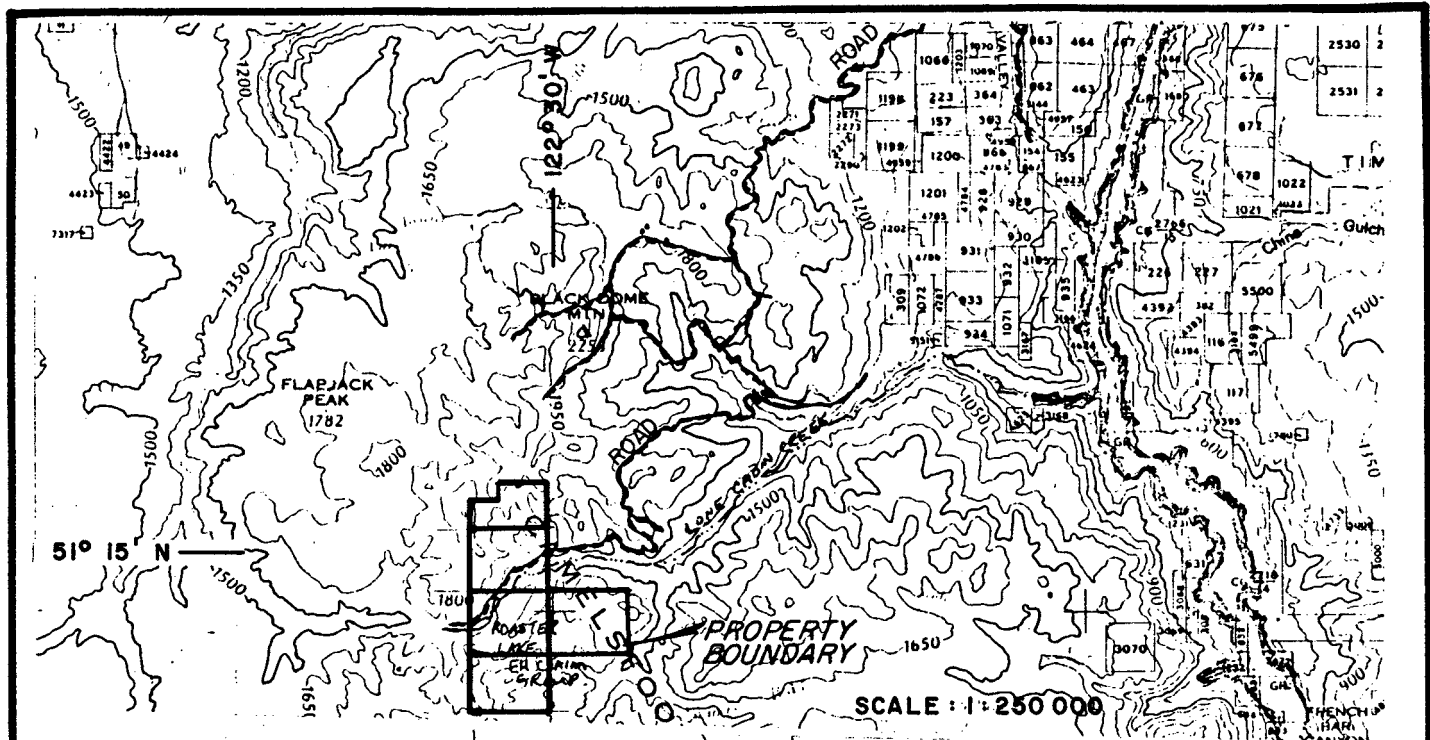
During the summer of 1987 a program consisting of grid preparation, soil sampling, geological mapping and magnetometer- VLF electromagnetic surveys were conducted over a portion of the EH claim group in the BLACKDOME MINE area on behalf of BALLATAR EXPLORATIONS LTD.

The exploration program was conducted during the period June 29 to August 21, 1987 by White Geophysical Inc. under contract to Ballatar Explorations Ltd.

The successful BLACKDOME MINE is some 2 kilometers northeast of the EH claims, which is the general trend of the mineralized structures. Thus the purpose of this exploration program was to conduct detailed soil sampling and closely spaced magnetic and VLF electromagnetic readings to try and detect any evidence of the epithermal gold bearing structures. Geological mapping was undertaken to examine the underlying rocks and to map any rock alteration.

## PROPERTY

| CLAIM |   | #UNITS | RECORD # | RECORD DATE       |
|-------|---|--------|----------|-------------------|
| EH    | 1 | 20     | 1546     | September 7, 1988 |
| EH    | 3 | 20     | 1548     | September 7, 1988 |
| EH    | 5 | 20     | 1550     | September 7, 1988 |
| EH    | 6 | 20     | 1551     | September 7, 1988 |
| EH    | 7 | 20     | 2295     | July 31, 1988     |



**BALLATAR EXPLORATION LTD.**  
**EH CLAIMS**  
**LOCATION AND CLAIMS MAP**

**WHITE GEOPHYSICAL INC.**

**FIG. 1**

## LOCATION AND ACCESS

The EH claims are situated some 70 kilometers west-northwest of the village of Clinton, B.C. on the Camelsfoot Range, Fraser Plateau and about 33 kilometers southwest of the Gang Ranch. N.T.S. 92 0/8W & 7E; Lat.  $51^{\circ}15'N$ ; Long.  $122^{\circ}30'W$ ; Clinton Mining Division.

The center of the claims are accessible during dry weather by four wheel drive vehicle along a network of logging and mining roads. The most direct route takes approximately five hours from Clinton, via the Blackdome road from highway 97. It is 75 km west on this road to the Gang Ranch bridge; 15 km south to the Blackdome access road; 18.5 km along this road to an old access road which climbs steeply to the west for 4.5 km to an unmaintained road to the southwest which crosses Porcupine Creek at 5.5 km; 15 km west this road crosses the eastern claim boundary and eventually it leads along the north bank of Lone cabin creek.

The northern claims can be reached via the Blackdome Mine which is some 3 kilometers to the northeast. A four wheel drive road follows the ridge from Blackdome Mountain.

## PHYSIOGRAPHY

The property is in the interior Fraser Plateau region in a climatic zone of moderate snow cover and severe winters. The topography of the claims is centered on the steep U-shaped Lone Cabin Creek Valley. Slopes are steep to moder-

ate with elevations ranging from 1630 m to 2115 m. The vegetation is predominantly open consisting of grassy slopes to moderate bush (with some very steep slopes) with poplar, spruce and fir trees. Deadfall is abundant in some areas; denser larger growth is found in the valley bottoms.

Glacial till occurs as a thin cover, averaging 3 meters on the property. A well developed "B" soil horizon is often red brown with abundant charcoal fragments. The area is about 5% outcrop which is found mainly in road cuts and forming spines on hillsides.

#### **SURVEY GRID**

Mineral claims EH 1, 3 and 5 were the focus of this program as they are on the projected trend of the Blackdome vein system. A north-south baseline was established along the eastern claim line. Lines were then turned off at right-angles every 100 meters. Several 50 meter spaced lines were placed in the northeast corner of the property to obtain more detail. Some 117 kilometers of grid and baselines were laid out and surveyed.

#### **REGIONAL GEOLOGY**

The geology for N.T.S. area 92 0 was compiled by H. W. Tipper of the G.S.C. in 1978 and is illustrated on open file map #534. E. L. Faulkner from the B.C. Department of Mines mapped the Blackdome deposit. His work is described in the

1986 Geological Fieldwork report for that year.

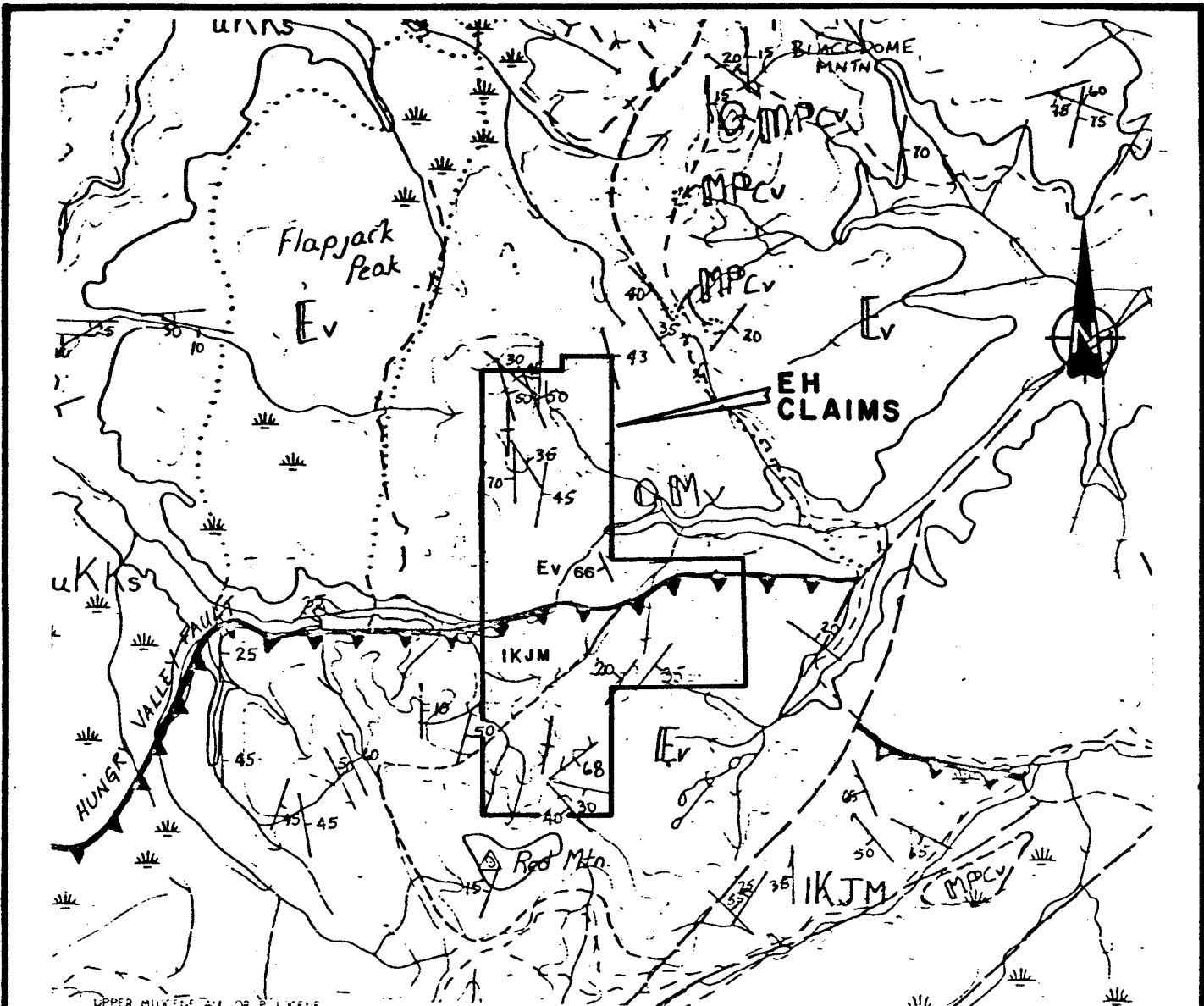
The general area is underlain by Cretaceous to Tertiary volcanic and volcanoclastic rocks and related feeder dykes. These rocks range in composition from basalt through andesite and dacite to rhyolite. A regional thrust, the Hungry Valley fault strikes east-west across the southern edge of the claims. South of the fault, Eocene rhyolitic and dacitic tuff, breccia and flows are overlain by Lower Cretaceous boulder-pebble conglomerates and lithic wackes of the Jackass Mountain Group. Figure 2.

The Blackdome Mountain and a series of smaller dacitic domes trend southwest forming a line volcanic eruptive center along the axis of a broad anticline with a shallow northeast plunge. Zones of tension fractures related to doming have been recognized as the loci for the emplacement of the epithermal quartz veins.

A dominant southwest structure hosts the vein systems at the Blackdome Mine. This system contains a series of quartz veins that cut all rock types except the youngest basalt flow unit on the summit of Blackdome Mountain. The veins strike generally N 40 degrees E, with moderate to steep NW dips.

The mineralization in the Blackdome Mine is similar to many epithermal gold-silver bearing quartz vein deposits of the "bonanza-type" occurring in the western U.S.A. The mine commenced production in May of 1986 with reserves of approximately 207,000 tons of 0.79 oz/t Au and 3.76 oz/t Ag.





UPPER MIOCENE TUFF OR PORPHYRY  
CHILCOTIN GROUP

- MPCv** Olivine basalt, andesite, minor rhyolite tuff and breccia  
OLIGOCENE AND (?) LOWER MIOCENE
- OMv** Grey to brown, fine-grained to porphyritic and amygdaloidal andesite and basalt tuff, breccia, and flows; includes minor Ev  
EOCENE AND YOUNGER (?), OLDER (?)
- Ev** Rhyolitic and dacitic tuff, breccia, and flows; minor andesitic to basaltic rocks; may include minor OMv  
LOWER CRETACEOUS (BARREMIAN TO ALBIAN)  
JACKASS MOUNTAIN GROUP
- IKJM** Buff to green grey-sacke, grey shale and pebble conglomerate, massive boulder conglomerate
- TERTIARY**  
EOCENE
- Ef** Felsite, feldspar porphyry, biotite feldspar porphyry

**BALLATAR EXPLORATION LTD.**  
**EH CLAIMS**  
**REGIONAL GEOLOGY MAP**

FROM G.S.C. O.F. 534  
COMPILATION BY TIPPER, 1978

**WHITE GEOPHYSICAL INC.**

SCALE : 1:25 000

FIG. 2

The ore occurs in highly silicified parts of the veins and generally forms steeply plunging rich shoots with strike lengths seldom exceeding 30 meters. The shoots vary from a few centimeters to a few meters in width and may occur as weak stringer zones to sheeted vuggy veins composed almost entirely of quartz. Fine grained native gold and silver, electrum, acanthite-argentite and freibergite with minor base metal sulphides form the ore suite.

Wallrock alteration consisting of silicification and bleaching occurs typically within one meter of the veins and is surrounded by very intense argillic alteration up to fifteen meters in width. Minor propylitization is present. Abundance of quartz does not guarantee precious metal values and there is no obvious shape or pattern to the ore shoots.

#### **PROPERTY GEOLOGY**

The geology of the property has been progressively mapped by geologists K. Heberlein 1985, B. Butterworth and J.C. Freeze 1986 and B. Reed 1987. The mapping programs indicate that the claims are underlain by units similar to those found on Blackdome Mountain and thus have a high potential for gold and silver mineralization.

These units include thin to thick bedded basaltic to rhyolitic flows, tuffs and breccias including both subaerial welded tuffs and subaqueous pillow fragments. Bedding varies from flat lying to a moderately east to southeast dip which

may indicate paleotopography. Descriptions of these units are as follows:

**Basalt-andesite:** Medium drab grey-green, weathers mottled brown gray, fine grained, soft rare carbonate stringers, moderately magnetic, white subhedral feldspars to 2mm., 7 - 10% rare rounded grains of white-grey quartz to 2mm.

**Basic tuff-breccia:** Fresh and weathered green-grey-brown, 50-60% unsorted angular to rounded clasts to 35cm of assorted composition. Larger fragments, mainly basic, include: andesite, dacite, rhyolite and chert. One 35cm clast appears to be a pillow basalt fragment. Matrix is variable from chloritic medium-green tuffaceous and moderately fissile in part, to very soft and clayey. Possibly a lahar, nonmagnetic, very calcareous in patches. Vugs to 1cm of coarse crystalline calcite-quartz and minor chalcedony. Some cockscomb quartz. No visible sulphides. Includes some 35cm thick beds of andesite-dacite, light to medium gray-green, weathered tuff, with 3% feldspar crystals to 2mm., and 5% grey quartz crystals to 2mm. Variably calcareous.

**Andesite:** Medium-light gray, gray-brown and reddish mottled. Weathers light buff to limonitic. Very fine to fine-grained. Moderately soft. Variably calcareous, nonmagnetic, generally massive, but contains rare fragments of same composition. Weathered surface shows faint flow banding. Contains from 0% to 10% white-buff feldspar crystals, clay altered and with carbonate rims. Greenish-black specks <5% may be chlorite. /disseminated pyrite to 0.25mm., 1/2% to 1%.

**Dacite-andesite:** Variably dark gray-brown-pink-green, weathers brown-gray. Fine grained, massive to shaley to knobby. Some with approx. 5% dark gray siliceous nodules to 1 meter. Slightly magnetic. Variably calcareous. Up to 10% white-cream anhedral specks to 0.5mm., may be altered feldspars with carbonate rims. Tuffaceous in part. No visible sulphides.

**Lithic lapilli (crystal) dacite tuff:** Light to medium green, fine grained, moderately siliceous matrix with up to 50% angular, fragments to 2cm, rarely 5cm, of same composition. Few fragments of very clay altered rock to 1cm., plus rare chert and basalt. Weathers dark graygreen. In part contains approx. 7% black anhedral to subhedral hornblende crystals to 2mm. and 7-10% white anhedral to subhedral feldspar crystals. Massive to moderately foliated, noncalcareous, nonmagnetic, up to 4% disseminated fine grained pyrite, .5mm max.

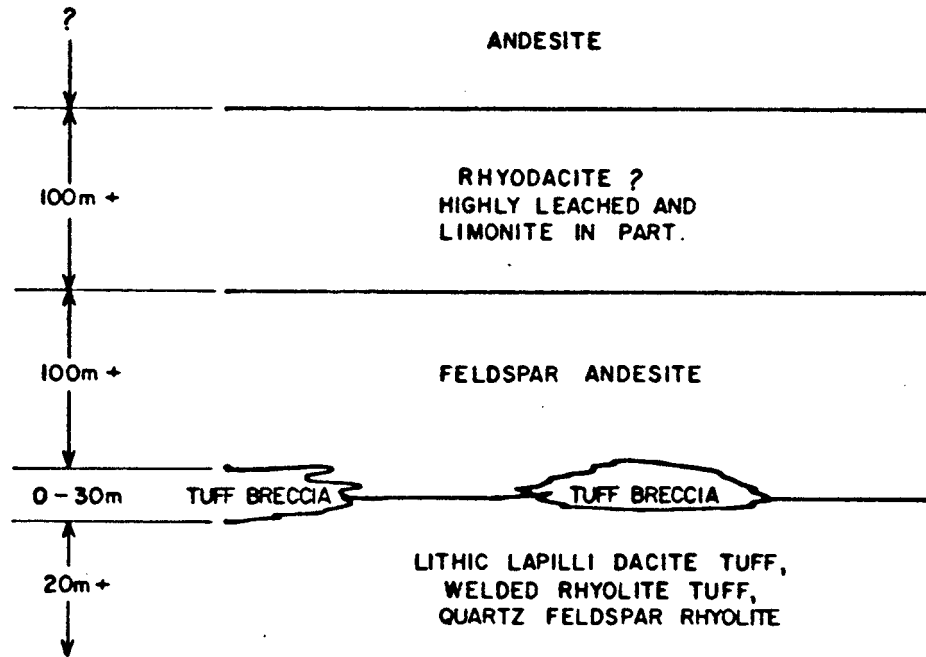
**Rhyolite-dacite:** Light-gray-green, weathers same to buff, pitted. Fine to coarse grained, mainly tuffaceous. Feldspar crystals to 1mm, 5% to 20% subhedral with some clay alteration. Carbonate-quartz blebs to 3mm. 5-7%, some hematite rimmed. Clear gray quartz grains to 2mm, rarely 1.5cm, 5-7%. Variably magnetic. Dark mafic specks to 0.5mm are biotite, 7%. Limonitic cubes to 0.5mm may be from pyrite, 1/2%.

**Rhyolite-dacite:** White-brown highly leached siliceous rock, heavily limonitic to jarositic stained throughout, some manganese staining on fractures. Fine grained. Gray quartz lenses and grains to 1cm x 1mm, 10%. Limonitic cubes to 3mm. 10%, probably from pyrite. Nonmagnetic, noncalcareous.

**Welded rhyolite tuff:** White-gray weathers light limonitic, fine grained nonmagnetic, noncalcareous. Under hand lens can see flattened glassy shards. Pyrite-none to trace, disseminated, 0.25mm. max.

The geological setting of the EH 3, 5 and 6 claims seems to be similar to the lowest section of the Blackdome rocks, mainly acidic flows, tuffs and breccias overlain by andesite and/or dacite (see Figures 3 and 4). While the upward series of rocks at Blackdome is rhyolite, volcaniclastic sediments, feldspar andesite and/or dacite, oxidized horizon and basalt; the corresponding units on the EH claims appears to be rhy-

APPARENT  
THICKNESS



BALLATAR EXPLORATION LTD.  
EH CLAIMS

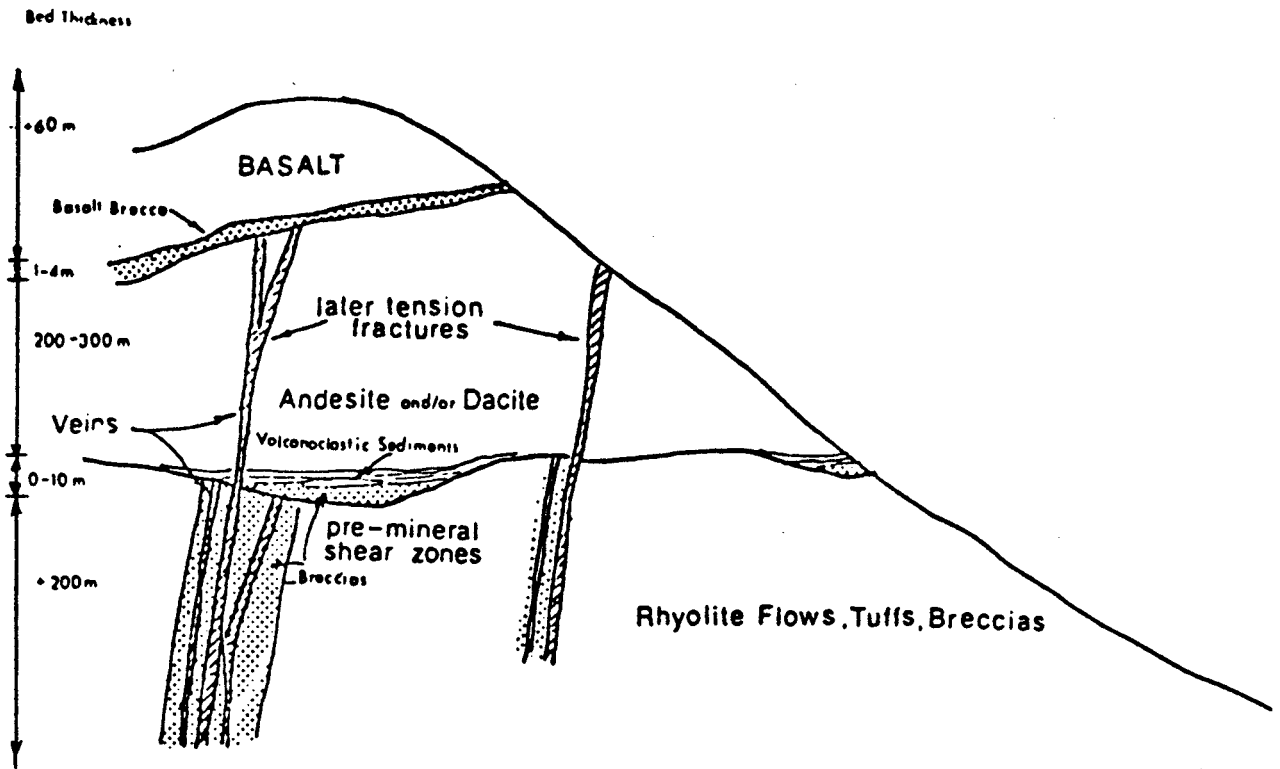
IDEALIZED CROSS SECTION - EH CLAIMS

1 : 5,000

GEOLOGY BY K.H.

WHITE GEOPHYSICAL INC.

FIG. 3



IDEALIZED CROSS-SECTION  
BLACKDOME MOUNTAIN AREA  
Showing Vein Formation

BALLATAR EXPLORATION LTD.  
EH CLAIMS  
IDEALIZED CROSS SECTION-BLACKDOME MTN.

TAKEN FROM ADTEC MINING CONSULTANTS,  
WESTERN GEOPHYSICAL AERO DATA LTD.  
1984 REPORT

WHITE GEOPHYSICAL INC.

FIG. 4

olite, tuff breccia, feldspar andesite, leached limonitic siliceous rock (rhyodacite), andesite. Thinner volcanoclastic sediments were not seen, and the breccia unit is thicker.

The overlaying feldspar andesite seems to be thinner than at Blackdome. The 4 meter thick oxidized horizon at Blackdome appears to be the equivalent to the highly leached limonitic siliceous rock on the EH claim where it is possibly over 100m thick. This is again overlain by andesite. The basalt cap rock has not been seen by any of the mapping to date.

#### **PREVIOUS WORK**

Prospecting in the 1940's lead to the discovery of gold bearing quartz veins around the Blackdome Mountain area. Surface work and 2 small adits were completed in the 1950's. Barriere Reef Resources staked the claims in the 1970's and undertook considerable trenching, drilling and underground exploration.

Blackdome Explorations Ltd. was formed to work on this property. Heath Steele Mines Ltd. drove an exploration adit and subsequently returned the property to Blackdome Explorations Ltd. Blackdome continued exploration and commenced production in May of 1986.

The EH claims were staked in 1983 as a regional epithermal gold prospect as a result of prospecting that had located considerable calcedony float between Red Mountain and Blackdome Mountain.

Kargen Development Corporation commissioned an airborne magnetometer and VLF electromagnetic survey over the claims. Several definite east-west faults were detected as well as a major magnetic low in the EH 3 and 5 claims.

J.B.L Resources completed a preliminary geological geochemical program in 1985 which identified a favorable geological environment. Kargen continued the program in 1986 with geochemical and geological work. Ballatar Explorations Ltd optioned the claims and has completed a geological, geophysical and geochemical program which is the subject of this report.

Previous expenditures were as follows:

|                                 |                 |
|---------------------------------|-----------------|
| 1984 Airborne survey            | \$22,800        |
| 1985 Geology geochemical survey | \$9,020         |
| 1986 Geology geochemical work   | \$8,254         |
| <b>Total</b>                    | <b>\$40,074</b> |

#### **MAGNETOMETER VLF ELECTROMAGNETOMETER SURVEYS**

The VLF EM and Magnetic surveys were conducted simultaneously utilizing the Omni-Plus VLF/MAGNETOMETER System built by EDA Instruments Inc. This instrument contains several microprocessors and associated circuitry for monitoring, processing and storing data. The VLF EM portion of this instrument utilizes the VLF-electromagnetic fields generated by submarine navigation and communication stations which operate in the 15-30 khz frequency band.



The field generated by these stations is primarily horizontal. The instrument indicates the presence of a secondary field due to a conductor as a distortion in this horizontal field.

The distortion of this field produces an anomaly in the tilt angle, quadrature and total field intensity readings. VLF EM data is corrected for facing direction during data processing and is edited for spurious noise spikes.

For maximum coupling, a transmitter station located in the same direction as the geological strike of interest should be selected, since the direction of the horizontal electromagnetic field is perpendicular to the direction from the transmitting station. The advantage of the Omni-Plus is that several stations can be recorded simultaneously since the instrument automatically orientates to the individual station direction.

The magnetics portion of this survey was conducted using the magnetometer system built into the Omni-Plus in conjunction with an EDA base magnetometer. The quartz clocks in the two instruments are synchronized in the morning. At the end of each survey day the field unit's readings are corrected using an RS232C interface and the built in microprocessors.

Following the diurnal correction procedure, data is dumped via the RS232C interface to a microprocessor which writes data to the disk for storage and later processing. The solid state memory of this instrument and the microprocessor

give rapid data gathering at some 5 - 10 kilometers per day at 12.5m station intervals.

## **GEOCHEMISTRY**

The soil samples were collected from the "B" horizon with the aid of a lightweight mattock and were sent to Van Geochem Labs for analysis. Special care was taken to try and get beneath the red earth charcoal horizon. In the laboratory the samples were oven dried at approximately 60 degrees centigrade. The dried samples were ring pulverized to approximately -100 mesh and were analyzed for the elements silver, gold and mercury by atomic absorption after digestion with hot concentrated nitric and hydrochloric acids. Some 2500 soil samples were obtained.

## **DISCUSSION OF RESULTS**

### **GEOLOGY**

Figure 5 illustrates the geology of the surrounding Blackdome and Bob claims with respect to the EH claims. It is taken from the work done by E.L. Faulkner 1986 and incorporates the general trend of the lithology found on the EH claims. The trend of the vein systems is toward the northeast corner of EH 1.

Figure 3 shows the order of the lithologic units as determined from the various mapping programs. The rhyolite sequence is found in the northwest corner of the claims,

while the breccias and tuffs are found at a much lower elevation near Roaster Lake. A considerable amount of quartz-chalcedony float was found on the mountain slopes north of Roaster Lake. The area is over burden covered and no outcrops of this material could be found.

### GEOCHEMISTRY

The 1986 program confirmed the earlier work in 1979 by J. Dawson for Barriere Reef Resources that the most effective element for geochemical exploration was mercury. Thus gold silver and mercury analysis were done on some 2500 samples.

The results are shown on Figures 6, 7 and 8. Both the gold and silver values are strongly suppressed. The results are of the same order of magnitude as the data on the adjoining Bob claims of Lexington Resources Ltd. Personal communication with Ashworth Explorations indicates that the 1987 trenching on the Bob claims on low order gold and a 1000ppb mercury anomaly exposed gold bearing quartz veins.

The mercury map Figure 8 depicts some very strong mercury soil anomalies. The highest values being in the southeast corner of the survey grid where two values of 5000 ppb, one 3200 ppb, one 2150 ppb and several over 1500 ppb were detected. Values of 480 ppb and over are definitely anomalous. Background values were between 35 and 55 ppb. The contour map shows several linear trends that likely reflect quartz veins.

An excellent anomaly of up to 1900 ppb was outlined in the northeast corner of the grid where the projected trend of the vein system from Blackdome should come through. The silver geochemical map located only one low order anomaly of .7 ppm silver. This value occurs on line 950 N at the baseline just above the high rock geochemical value of 680 ppb gold. Connecting the .1 to .4 ppm silver values as a series of dotted lines formed an interesting pattern of trends. For instance the mercury anomalies associated with the projection of Blackdome system are coincident with this pattern of southwest trending silver values.

The majority of the gold values were less than 5 ppb, however several clusters of 20 to 30 ppb anomalies were detected. Anomalies of this intensity were shown to be of significance on the Lexington property by follow-up trenching. A rock geochemical value of 90 ppb gold was obtained in the area of the possible Blackdome extension.

#### **MAGNETOMETER SURVEY**

The magnetic intensity map clearly delineates several families of magnetic values which reflect various lithologic units. These rock units are illustrated on the Interpretation Map as M1, M2, M3, M4 and M5. The southwest quadrant of the survey grid contains a pronounced magnetic low that likely represents a package of argillaceous rocks interbedded with the volcanics. The western half of the grid shows con-

siderable variation in magnetic intensity, while the eastern half is very mundane. A single nonmagnetic lithologic unit appears to occupy the eastern portion of the grid.

#### **VLF ELECTROMAGNETICS**

Figure 10 illustrates the data from Hawaii and Jim Creek; Jim Creek is the southern data below line 100 S and is ten times stronger than Hawaii. However Jim Creek was very intermittent this summer so it was necessary to record a second station in the generally southerly direction.

A number of strong conductor patterns are well defined. These conductors shown excellent correlation with the magnetic intensity data confirming the interbedded nature of the lithology. It would appear that the argillaceous units are moderately graphitic. The conductors trend north and then swing northeasterly towards the northeast corner of the grid, confirming the general strike of the underlying volcanic rock package.

#### **DATA CORRELATION**

The Blackdome geology as mapped by E. L. Faulkner shows the trend of the vein system towards the southwest. Area of Interest # 1 as shown on Figure 11 has good southwest trending mercury values coincident with low order gold and silver numbers. Rock geochemical values of 680, 90 and 60 ppb gold were detected in this area of interest indicating that the

rocks in the area are anomalous in gold.

Area # 2 contains the very high mercury values of 0.5% mercury in the soil. Litho geochemistry has recorded high mercury in the rocks with weakly anomalous gold of 20 ppb. This is a definite area of interest since considerable calcedony and quartz bearing rocks have been mapped here. The low magnetic values and strong VLF electromagnetic conductor would indicate that the area is likely underlain by sediments.

Area # 3 is an area of low magnetic intensity and strong mercury geochemistry with weak gold values. The area appears to have some regional faulting and thus may be a favorable zone for epithermal quartz systems.

Area # 4 is an area of spotty gold values of up to 45 ppb in the soil. A rock geochemical assay returned 55 ppb.

## CONCLUSIONS

The Blackdome Mine is a highly profitable 200 ton a day operation. Regional geology has shown that the epithermal vein systems at the mine trend in a southwest direction towards the EH claims.

Ballatar Explorations Ltd. has completed a program of grid preparation, soil sampling, magnetometer and VLF electromagnetic surveying and geological mapping to locate the possible extension of the vein system and any other area that could be of interest. This was undertaken since previous

work in 1985 and 86 and located strong mercury values with weakly anomalous gold values in an extension of the mine rock package to the south.

Four "Areas of Interest" were outlined. The primary one being the northeast corner of the claims where the geochemistry has indicated a possible extension of the mine vein system. The second occurs in the southwest corner of the grid where very high mercury geochemical values were detected in the soil and rocks in association with chalcedony and quartz veins.

Area three also has high mercury values in conjunction with possible regional faulting and a large magnetic low which may possibly be partially caused by epithermal alteration of the volcanic and interbedded sedimentary rocks.

Area four is an area of interbedded rhyolite, andesite and argillite that has a number of spotty gold geochemical values of up to 45 ppb gold that should be further examined.

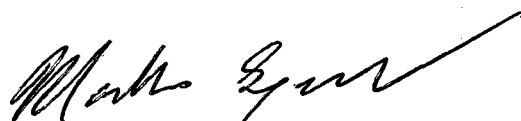
In conclusion then, the mapping of the mine rock types on the EH claims and the location of southwest trending geochemical values that may possibly reflect high level epithermal quartz veins, warrant a detailed exploration program. The very strong mercury values in southeast of the survey grid may possibly be a large hollow to a buried epithermal zone since quartz and chalcedony are present at the surface and contain weakly anomalous values of gold.

**RECOMMENDATIONS**

It is recommended that a program of trenching be undertaken to evaluate the trend of the Blackdome vein system onto the EH claims. Geological mapping with close spaced rock and soil sampling should be completed in the areas of interest.

Previous experience in the Toodoggone by White Geophysical Inc. has shown that resistivity mapping of the quartz veins with VLF - Resistivity or close spaced induced polarization surveying can be effective in helping to trace the quartz veins to assist trenching or diamond drilling.

RESPECTIVELY SUBMITTED,



MARKUS SEYWERD, B.Sc.,  
GEOPHYSICIST.



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**COST BREAKDOWN**

| <u>PERSONNEL</u>                                   | <u>DATE</u>         | <u>WAGES</u> | <u>TOTAL</u>    |
|--|---------------------|--------------|-----------------|
| B. Acheson   | June 29-July 5      | 325/d        | \$2,275         |
| T. Langmead  | June 29-July 5      | 195/d        | \$1,365         |
| G. Hemmingsley                                     | June 29-July 5      | 195/d        | \$1,365         |
| A. White   | July 4-21 Aug 1-13  | 165/d        | \$5,115         |
| D. Mitchell  | July 4-21           | 165/d        | \$2,970         |
| J. Edmenston                                       | July 29-Aug10 14-21 | 325/d        | \$6,825         |
| M. Niedzwich                                       | June 29 July 21     | 225/d        | \$5,175         |
| K. Kutz  | Aug 14-21           | 180/d        | \$1,440         |
| Meals and accomodations, 168 man days @ \$55       |                     |              | \$9,380         |
| Vehicles all inclusive (4x4+tr) @ \$125/d, 40 days |                     |              | \$5,000         |
| Omni plus mag-VLF EM system & base stn @\$275/d    |                     |              | \$5,775         |
| Sample analysis 2500 @ \$9.00                      |                     |              | \$22,500        |
| Materials  |                     |              | \$819           |
| Computer processing and plotting                   |                     |              | \$2,250         |
| Geological mapping Bill Reed & Assoc.              |                     |              | \$5,500         |
| Interpretation and reports                         |                     |              | \$3,200         |
| <b>TOTAL</b>                                       |                     |              | <b>\$86,804</b> |

**STATEMENT OF QUALIFICATIONS**

**NAME:** SEYWERD, Markus B., B.Sc.

**PROFESSION:** Geophysicist

**EDUCATION:** University of British Columbia -  
B.Sc., Mathematics

**EXPERIENCE:** Three years of summer field work with Noranda  
Exploration Company Ltd. in British Columbia,  
Northwest Territories and Yukon Territories.

Two year Geophysicist with White Geophysical  
Inc. with work in British Columbia,  
Saskatchewan and Yukon Territories.

**OMNI-PLUS MAGNETOMETER/VLF SPECIFICATIONS**

| <b>Physical Dimensions</b> | <b>Wt(kg):</b> | <b>w x h x d(mm)</b> |
|----------------------------|----------------|----------------------|
| Instrument console only    | 3.8:           | 122 x 246 x 210      |
| Battery belt               | 1.8:           | 540 x 100 x 40       |
| Battery cartidge           | 1.8:           | 138 x 95 x 75        |

**Sensors**

|                              |      |                |
|------------------------------|------|----------------|
| Magnetometer remote sensor   | 1.2: | 56 dia x 220   |
| Magnetometer gradient sensor | 2.1: | 56 dia x 790   |
| VLF sensor module            | 2.6: | 280 x 190 x 60 |

**Environment****Electronics**

|                             |                           |
|-----------------------------|---------------------------|
| Operating temperature range | -40 C to +55 C            |
| Relative humidity           | 0 to 100% (weather-proof) |

**Magnetometer Sensors**

|                   |                           |
|-------------------|---------------------------|
| Temperature range | -45 C to +55 C            |
| Relative humidity | 0 to 100% (weather-proof) |

**VLF Sensor**

|                   |                           |
|-------------------|---------------------------|
| Temperature range | -45 C to +55 C            |
| Relative humidity | 0 to 100% (weather-proof) |

**Standard Memory Capacity**

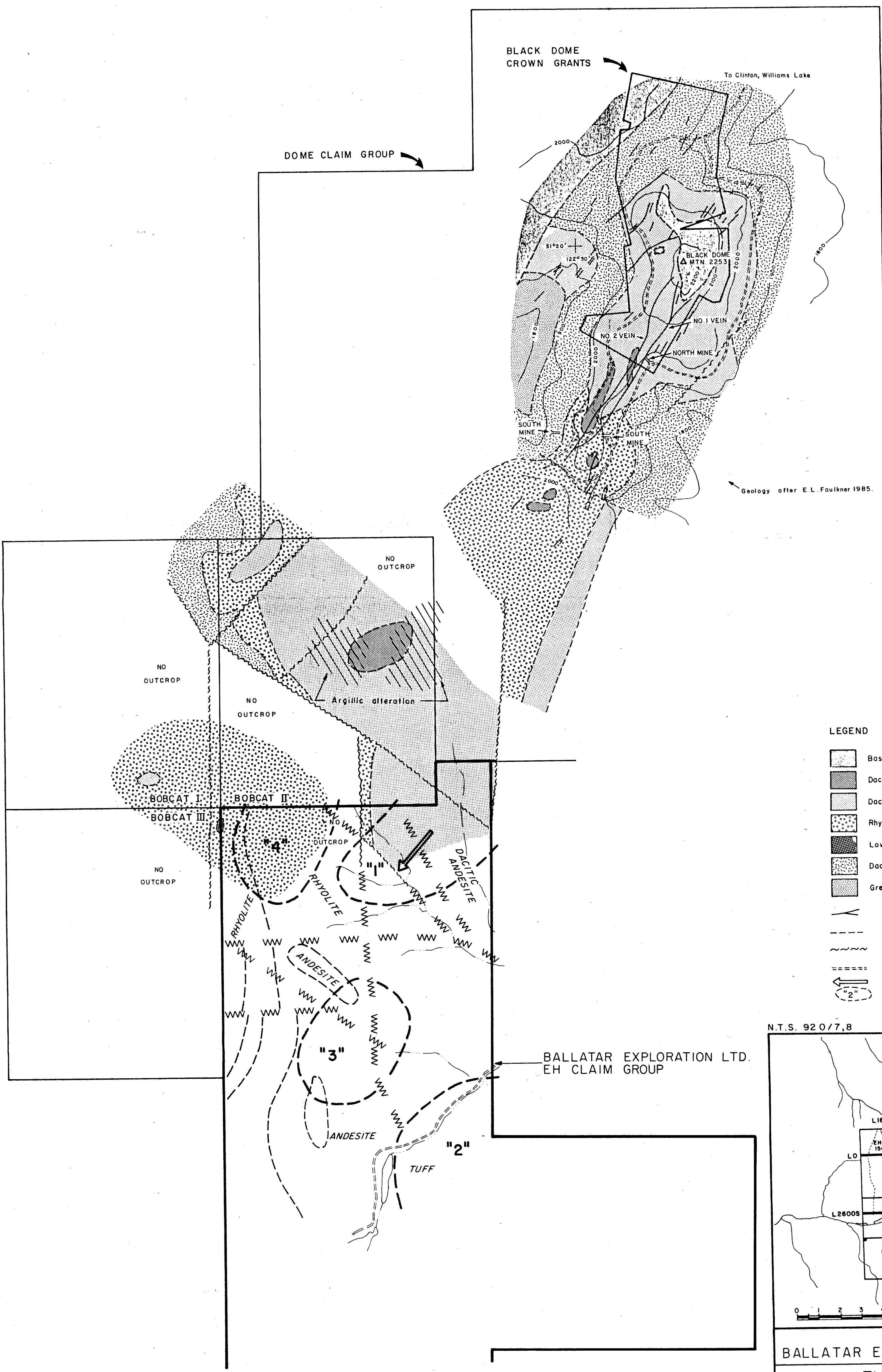
|                 |                       |
|-----------------|-----------------------|
| Field unit      | 1300 sets of readings |
| Tie-line points | 100 sets of readings  |
| Base stations   | 5500 sets of readings |

**Electronics**

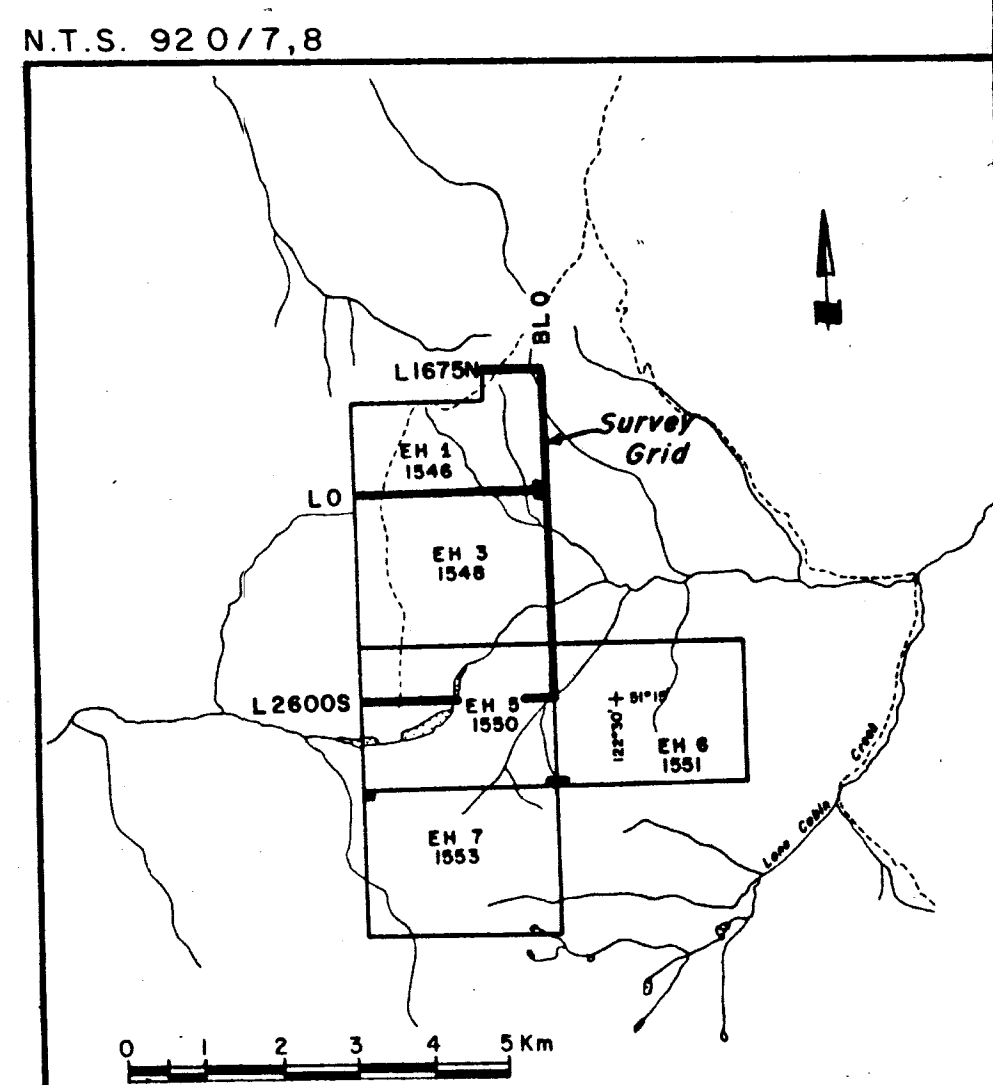
|   |             |
|---|-------------|
| RS-232C serial I/O                                      | 300 to 9600 |
| baud(programmable); 8 data bits, 2 stop bits; no parity |             |

Electronics console .....Enclosure contains electronics and battery pack (if not contained in separate belt). Front panel includes liquid crystal display (LCD), and keypad.

Power Supply .....Internal battery pack or external battery belt; or 12V car battery (base station).



- LEGEND**
- Basalt
  - Dacitic domes
  - Dacitic andesite
  - Rhyolite
  - Lower andesite
  - Dacite
  - Greenstone
  - Quartz vein
  - Geological contact
  - Fault
  - Road
  - Possible trend of vein system
  - Area of interest



GEOLOGICAL BRANCH  
ASSESSMENT REPORT

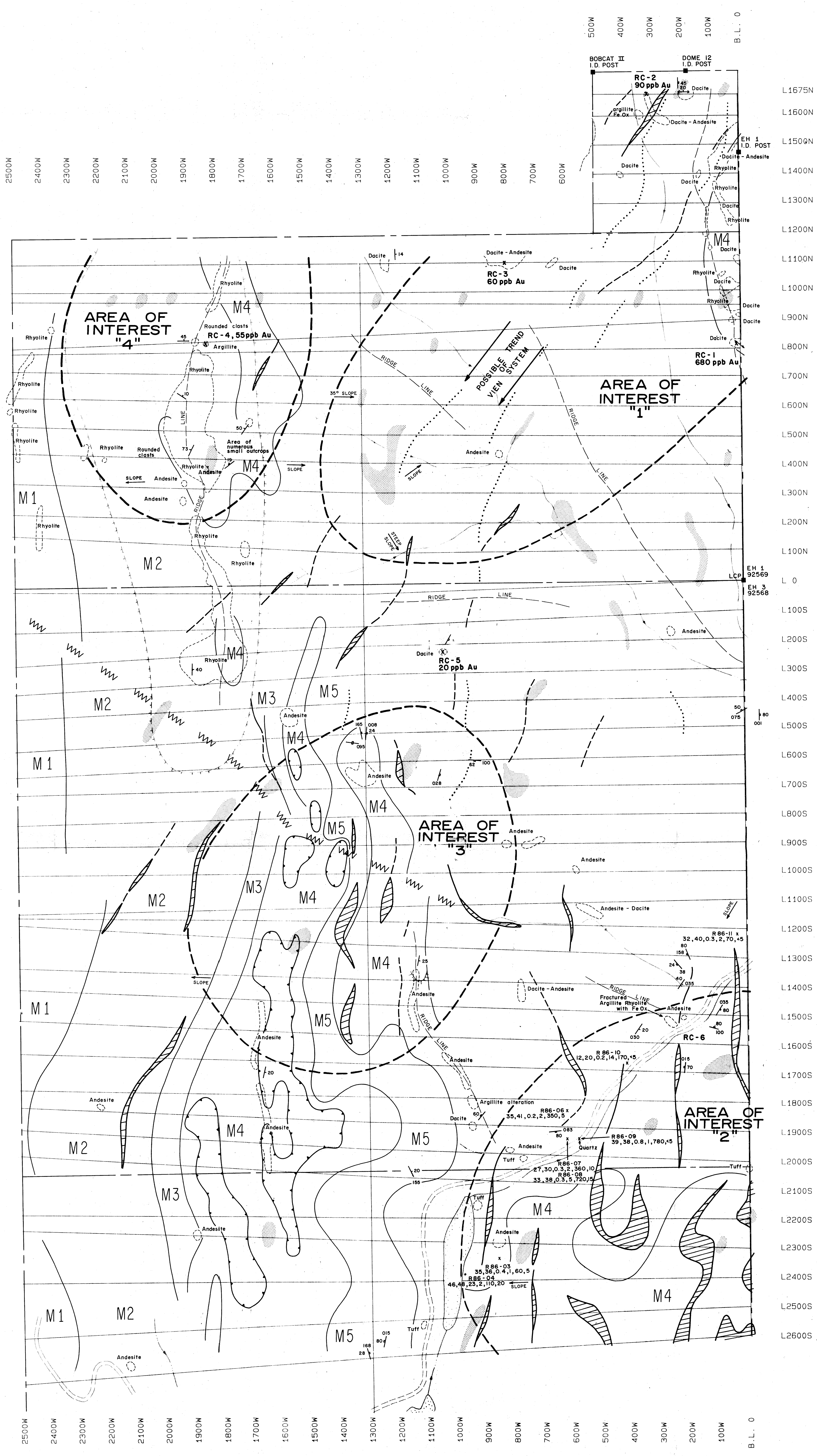
**16,685**

BALLATAR EXPLORATIONS LTD.  
EH CLAIMS  
GEOLOGY,  
SURROUNDING CLAIMS  
Scale 1:20 000.0

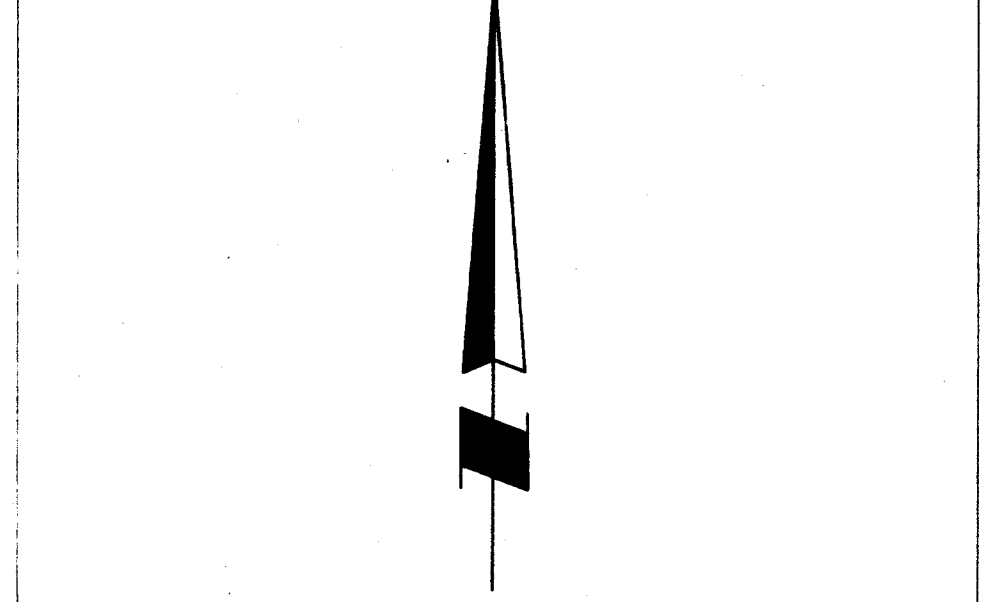
DATE: SEPT. /87 FIG. 5

WHITE GEOPHYSICAL INC.





L1675N  
L1600N  
L1500N  
L1400N  
L1300N  
L1200N  
L1100N  
L1000N  
L900N  
L800N  
L700N  
L600N  
L500N  
L400N  
L300N  
L200N  
L100N  
L 0  
L100S  
L200S  
L300S  
L400S  
L500S  
L600S  
L700S  
L800S  
L900S  
L1000S  
L1100S  
L1200S  
L1300S  
L1400S  
L1500S  
L1600S  
L1700S  
L1800S  
L1900S  
L2000S  
L2100S  
L2200S  
L2300S  
L2400S  
L2500S  
L2600S



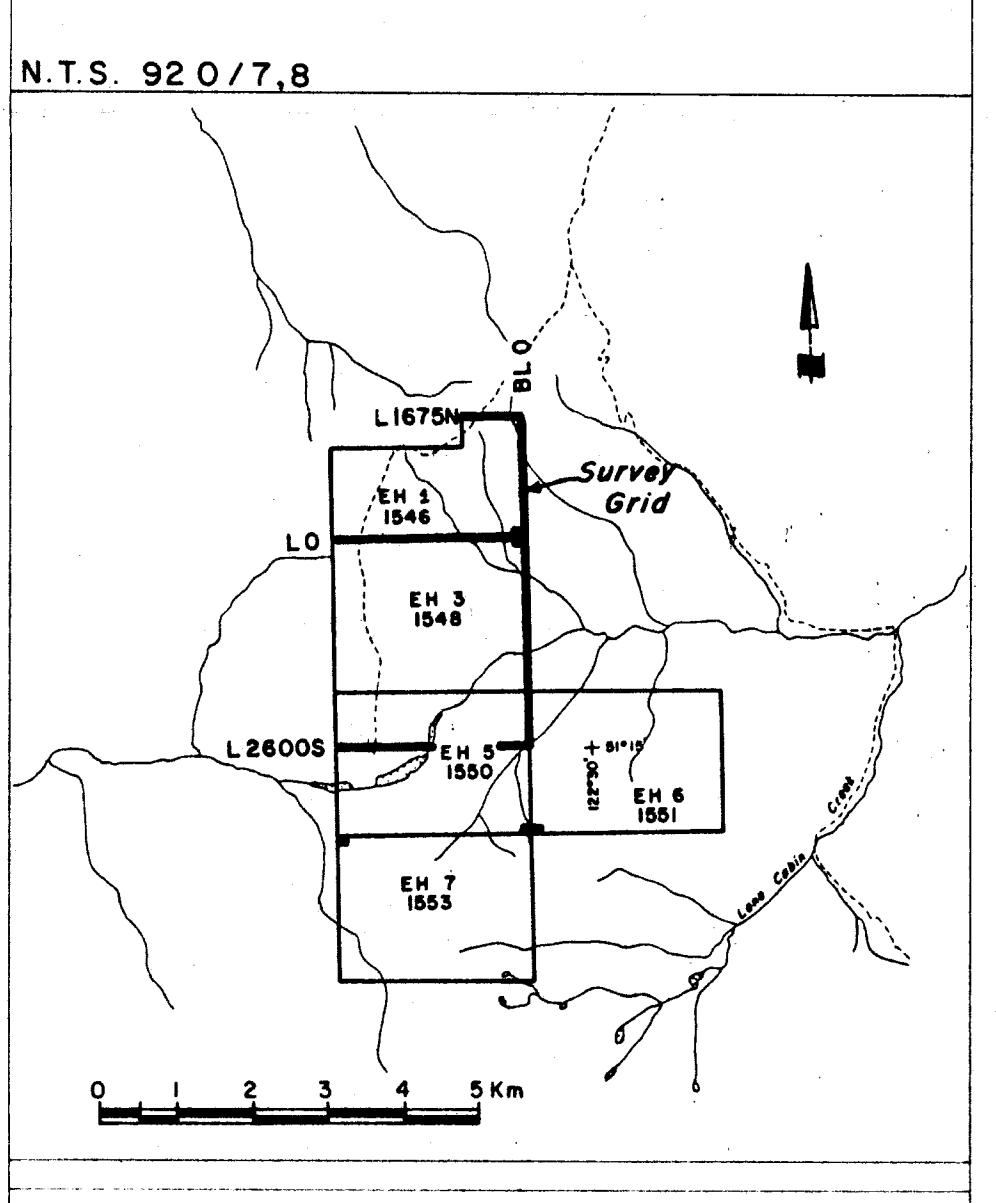
**LEGEND:**

- /60 Strike and dip of bedding
- /80 Strike and dip of fracturing
- /40 Strike and dip of flow banding
- Gold geochemical high
- Mercury geochemical high
- Silver geochemical trends
- M3 Inferred geology from magnetic intensity map

**ASSAY RESULTS**

RC-1 = Rock chip sample

| RC   | ppb Au | ppm Ag | ppb Hg |
|------|--------|--------|--------|
| RC-1 | 680    | 0.6    | 80     |
| RC-2 | 90     | 0.5    | 100    |
| RC-3 | 60     | 0.5    | 30     |
| RC-4 | 55     | 0.2    | 75     |
| RC-5 | 20     | 0.4    | 35     |
| RC-6 | 5      | 0.2    | 65     |



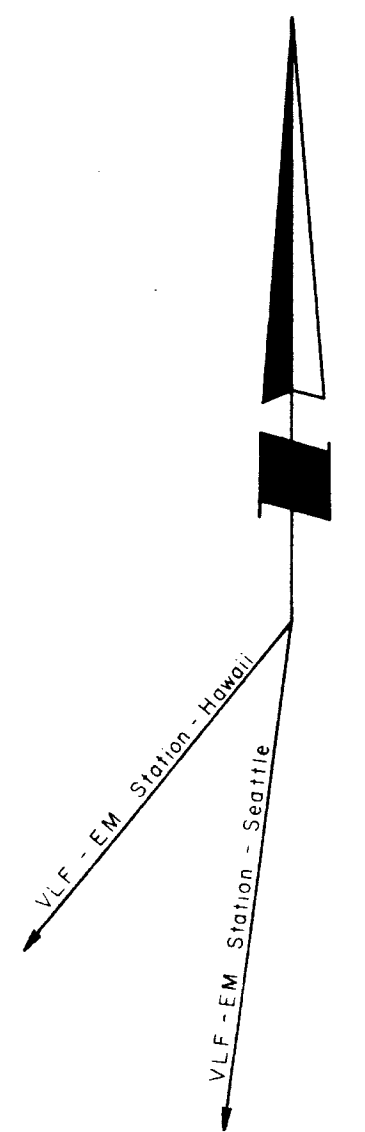
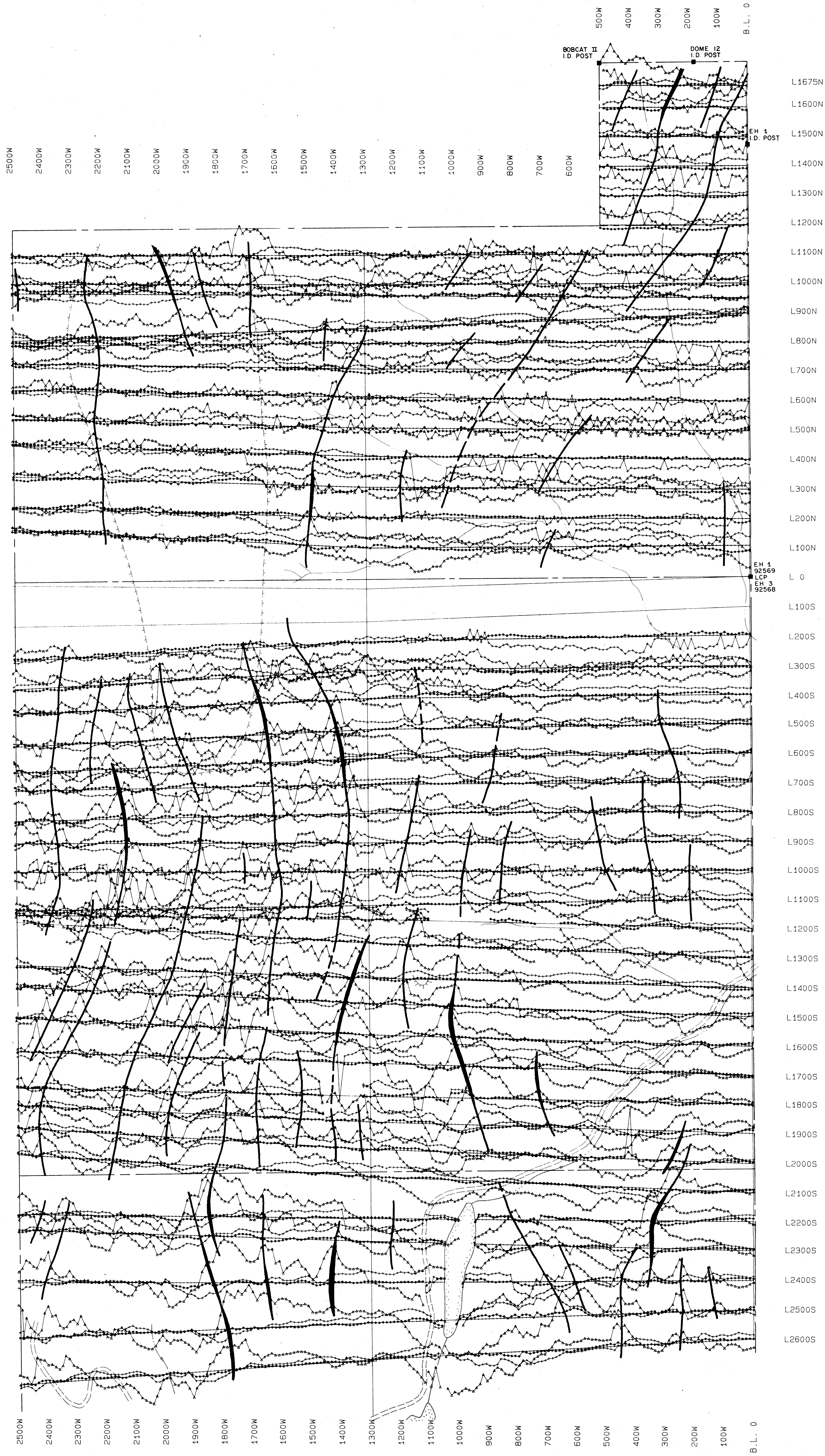
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ASSESSMENT REPORT

**16,685**

BALLATAR EXPLORATIONS LTD.  
EH CLAIMS  
GEOLOGY & INTERPRETATION  
MAP  
Scale 1: 5000.0

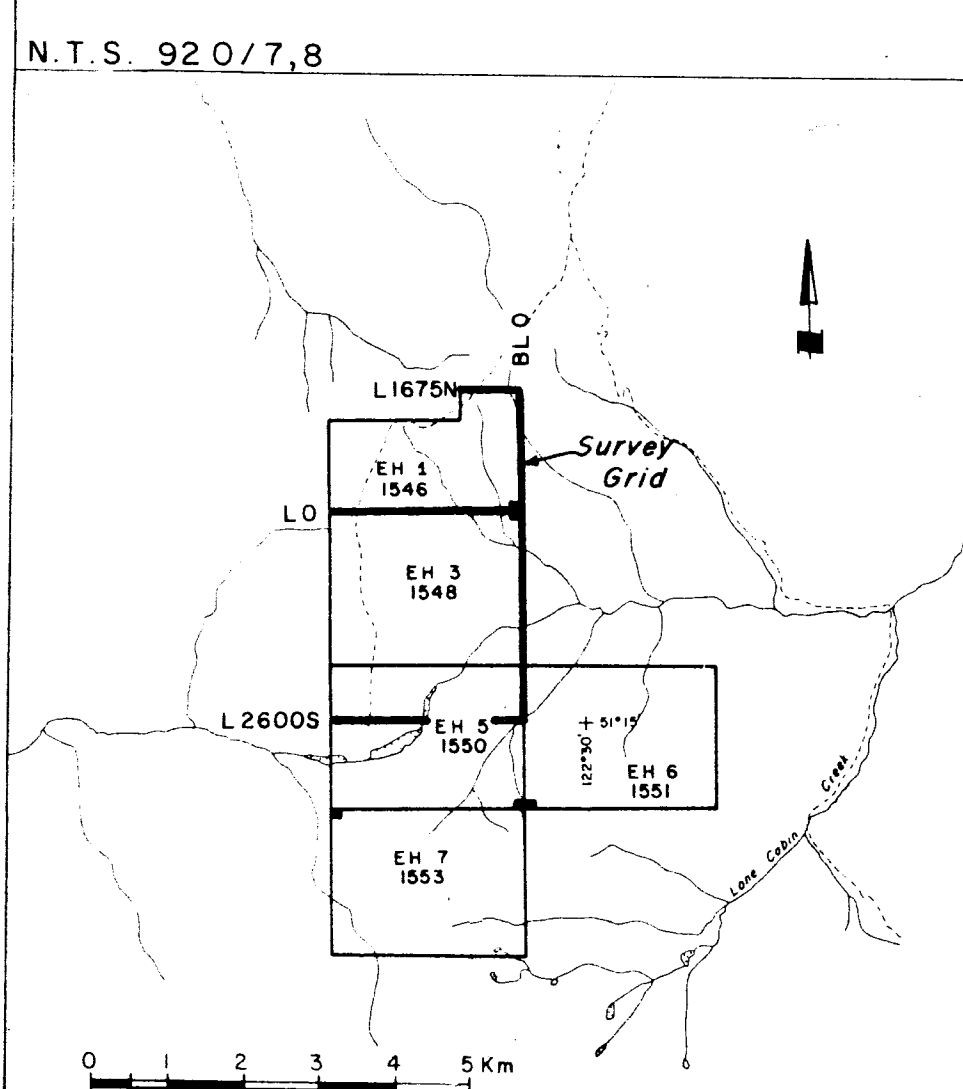
Date: \_\_\_\_\_ FIG. 11  
WHITE GEOPHYSICAL INC.





**LEGEND:**

- VLF-EM conductor axis
- △ Total field: Seattle - 2000% / cm  
Hawaii - 200% / cm
- ◇ Quadrature: 500% / cm
- + Inphase: 500% / cm



**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

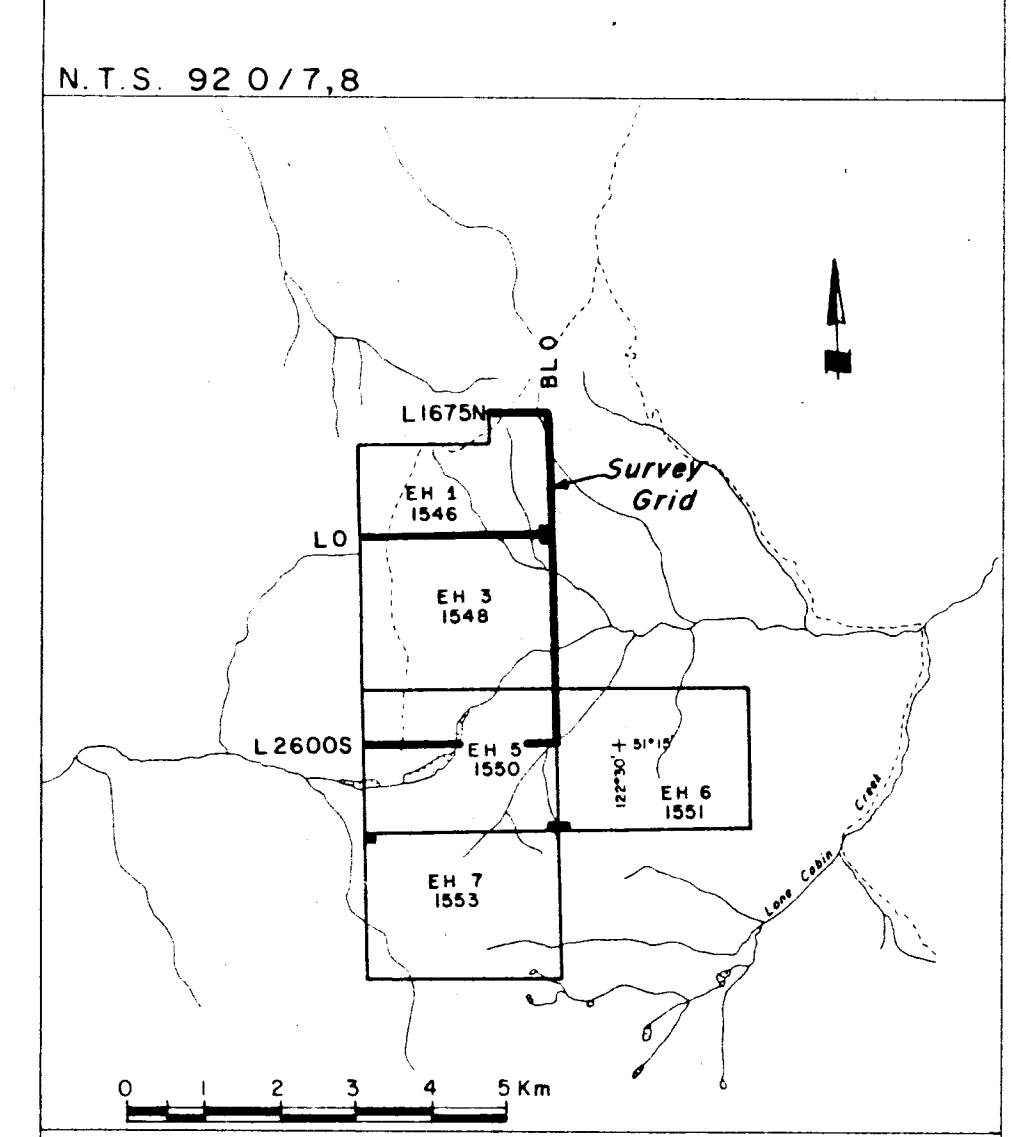
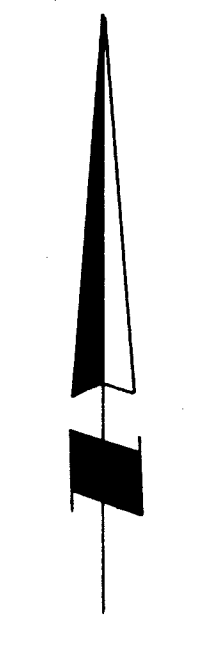
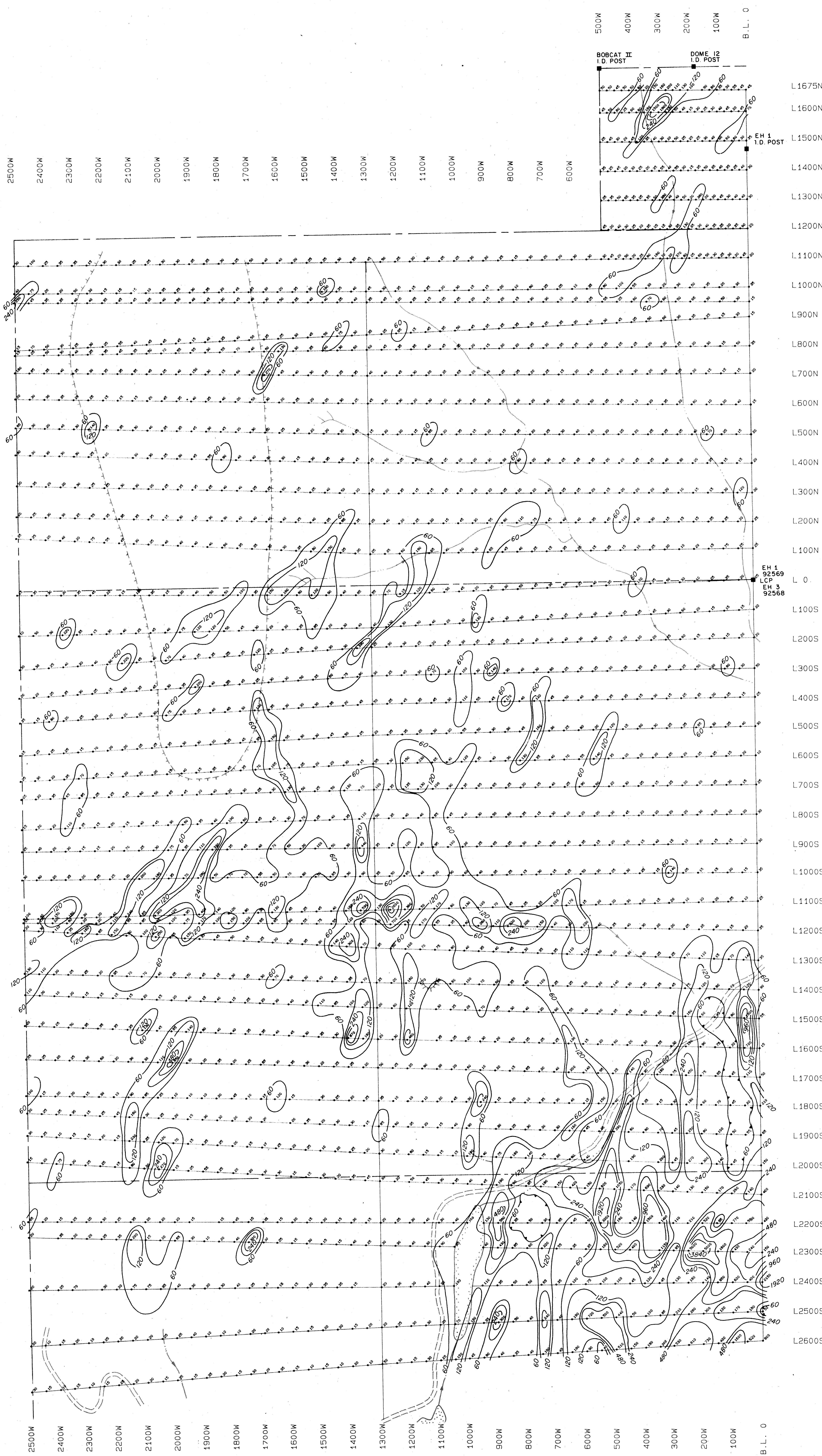
**16,685**

**BALLATAR EXPLORATIONS LTD**  
 EH CLAIMS - VLF SURVEY  
 TRANSMITTER: SEATTLE L400S-L2600S  
 .....HAWAII L300S-L1675N  
 Scale 1: 5000.0  
 Date: AUGUST, 1987  
 FIG. 10  
 WHITE GEOPHYSICAL INC.









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ASSESSMENT REPORT

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BALLATAR EXPLORATIONS LTD.

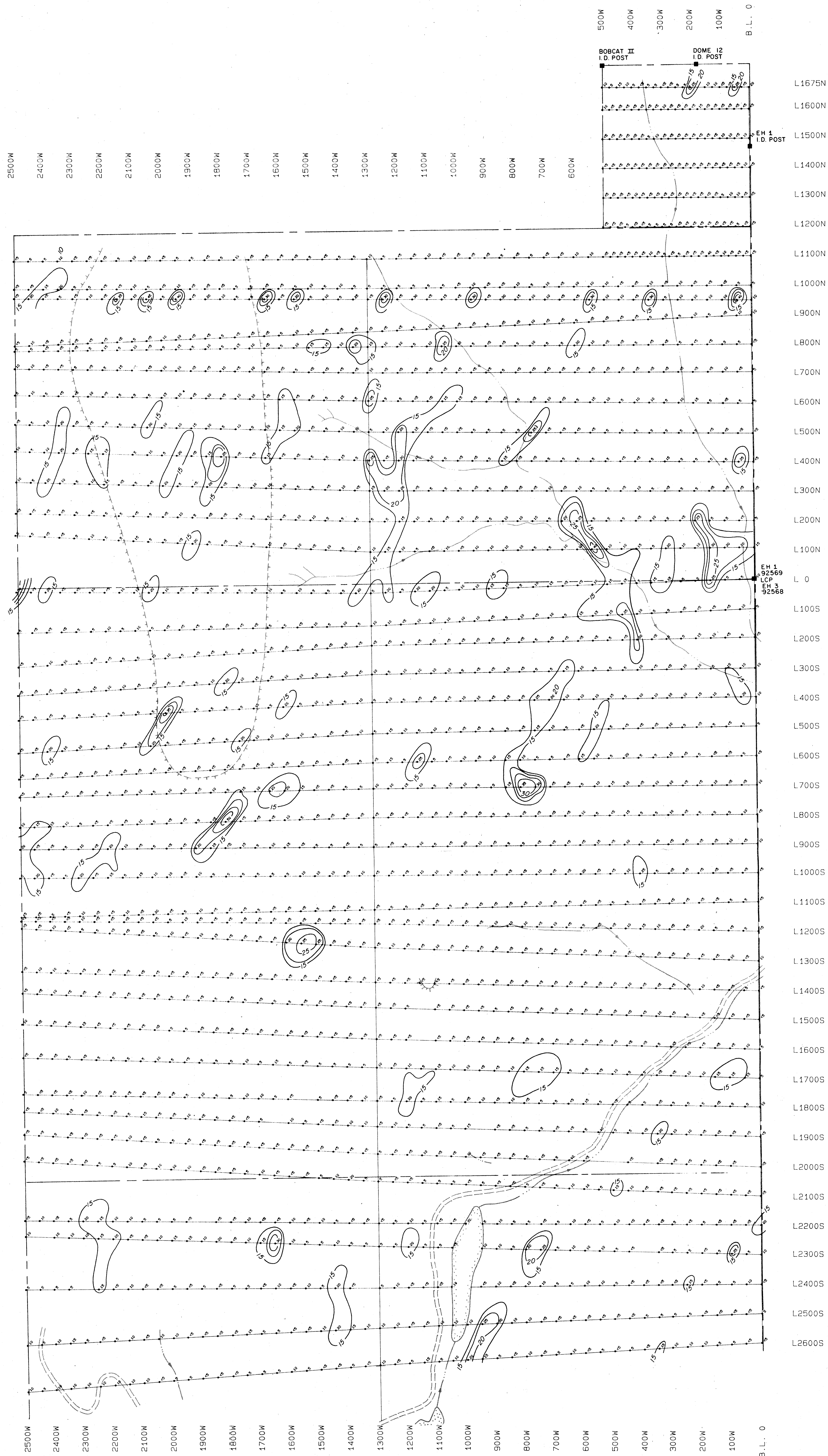
EH CLAIMS  
GEOCHEMICAL SURVEY  
MERCURY . . . . ppb  
Scale 1: 5000.0

Date: AUGUST, 1987

FIG. 8

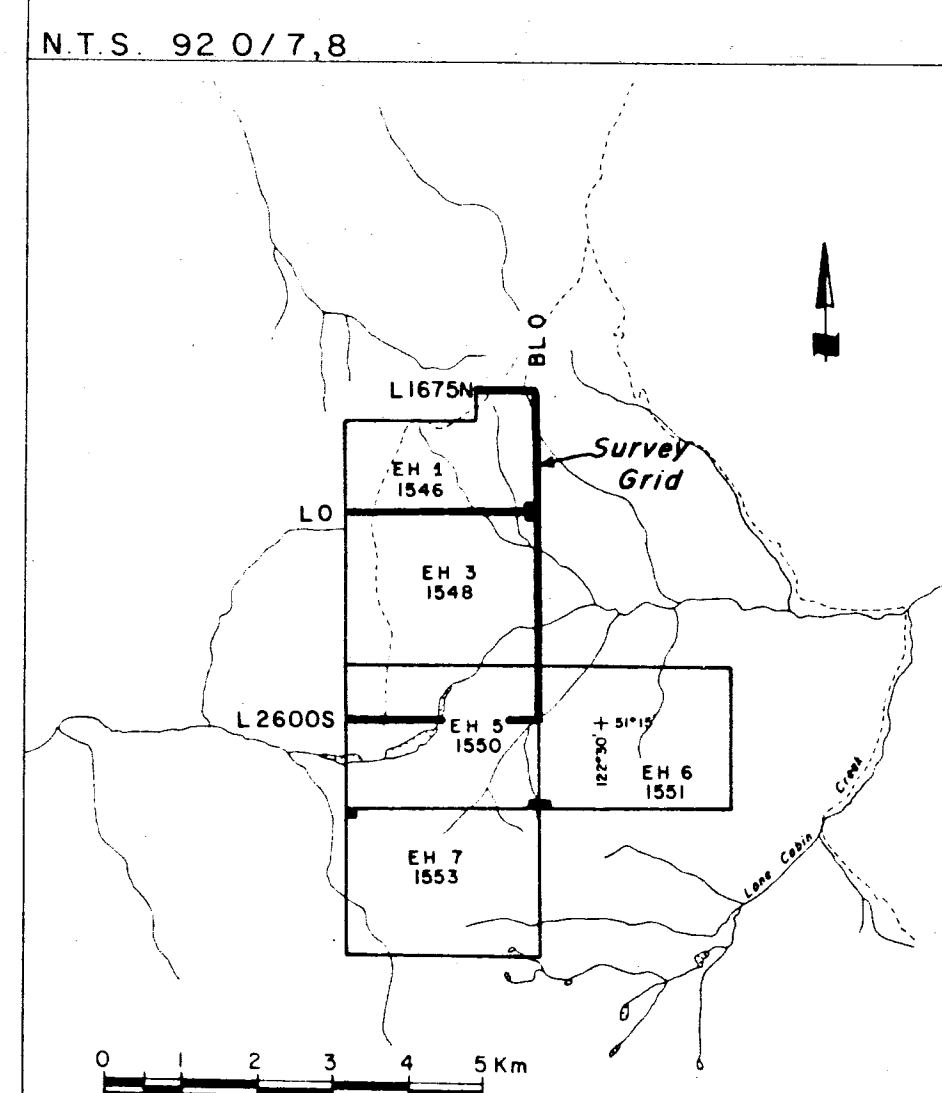
WHITE GEOPHYSICAL INC.





GEOLOGICAL BRANCH  
ASSESSMENT REPORT

16,685



BALLATAR EXPLORATIONS LTD.

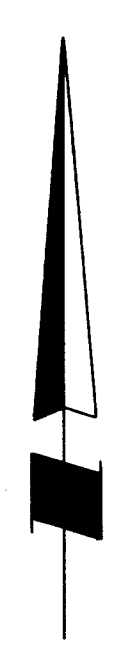
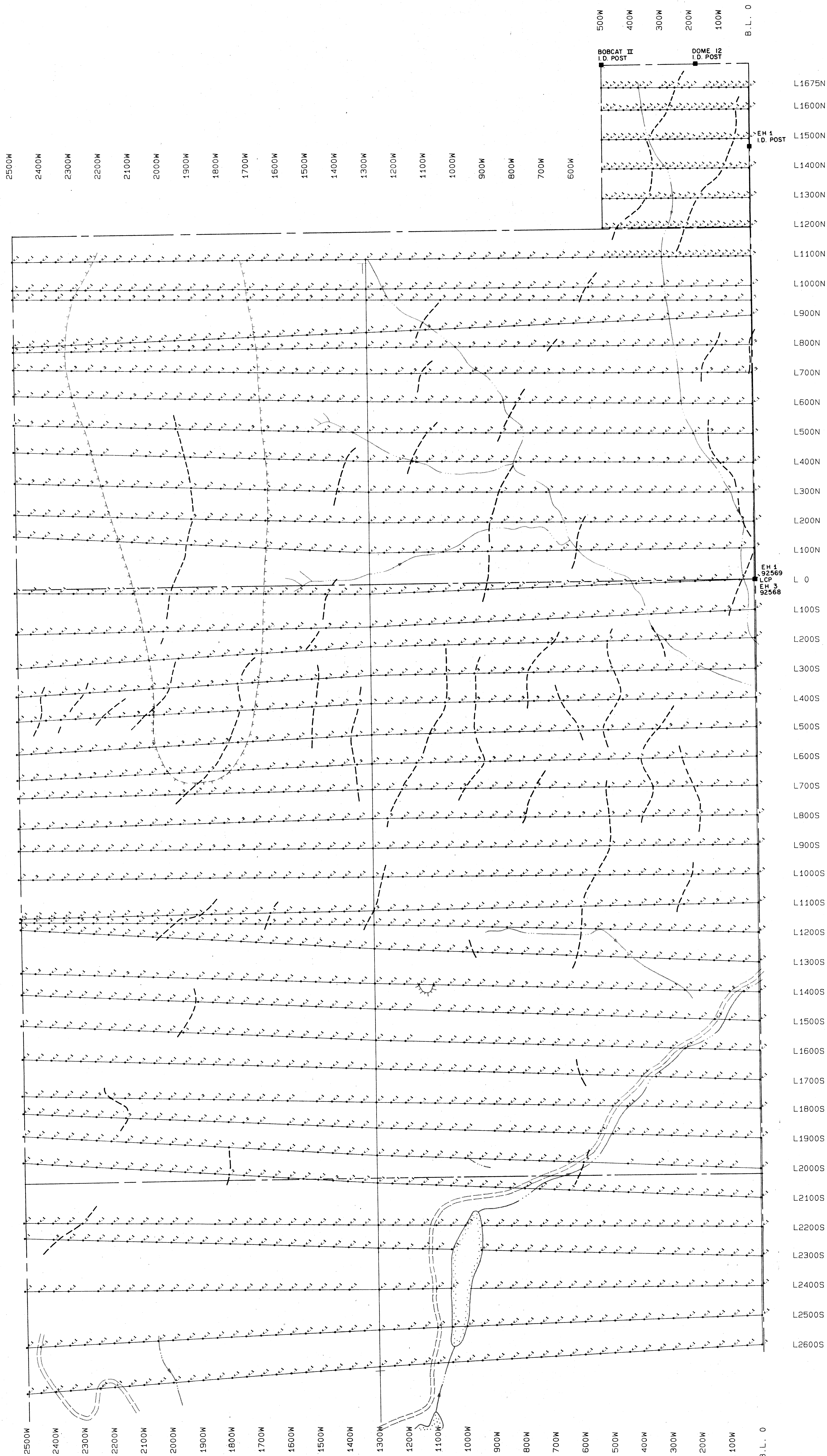
EH CLAIMS  
GEOCHEMICAL SURVEY  
GOLD ..... ppb  
Scale 1: 5000.0

Date: AUGUST, 1987

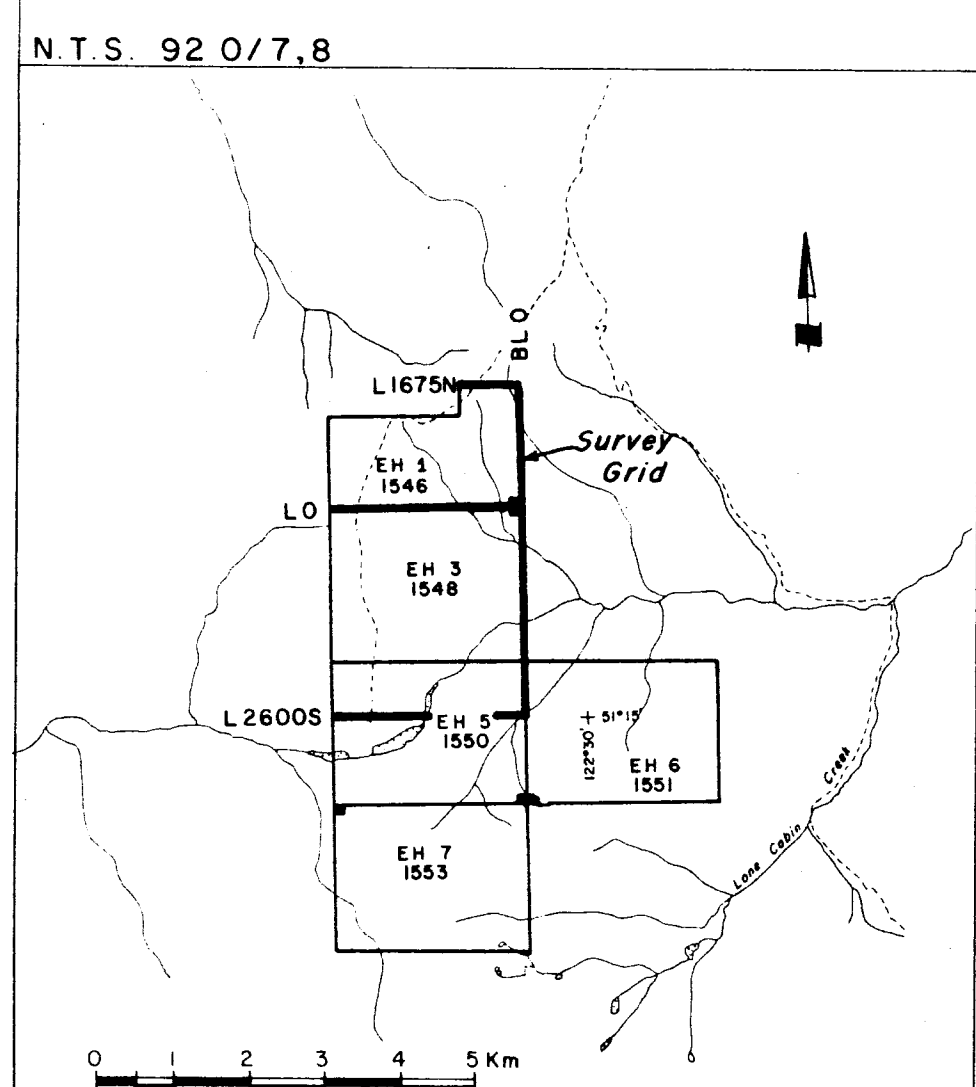
FIG. 7

WHITE GEOPHYSICAL INC.





**LEGEND:**  
 - - - Silver trends



**GEOLOGICAL BRANCH  
 ASSESSMENT REPORT**

**16,685**

BALLATAR EXPLORATIONS LTD.

EH CLAIMS  
 GEOCHEMICAL SURVEY  
 SILVER . . . . ppm  
 Scale 1: 5000.0

Date: AUGUST, 1987

FIG. 6

WHITE GEOPHYSICAL INC.