521004

REPORT ON

# DIAMOND DRILLING and TRENCHING
# on the
# HANK CLAIM GROUP in 1987

Ball Creek Area

Liard Mining Division

N.T.S. 104G/1, 2

OWNER and OPERATOR: LAC MINERALS LTD.
#470 - 1055 West Hastings
Vancouver, B.C. V6E 2E9

REPORT BY: Rein Turna
LAC MINERALS LTD.

DATE: February 16, 1988

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NOTE:

Figure Nos. 1-5 are in this binding.
Figure Nos. 6-18 are separate (in box for Field Report) and (in drawer or tube for Office Report).

## INTRODUCTION

### History

The Hank 1, 2 and 3 claims totaling 58 units were staked in March 1983 to cover streams anomalous in gold and draining a hillside with gossanous rocks also anomalous in gold. The HANK 4 claim (10 units) was staked in September 1984.

Claimposts from 1966 to 1980 belonging to five different owners were found within the area of the HANK Property. Government files show no record of work for assessment of these properties. Apparently they were allowed to lapse after the first year or were not registered.

Reports relevant to the HANK Claimgroup including summaries of work performed by LAC Minerals prior to 1987 are listed under References on page no.35.

### 1987 Field Season Work

All 1987 work is discussed in the report -- except for the geophysical results to be provided in a report by Peter E. Walcott & Associates Ltd. The complete and updated version of the Property's geology is provided in the report. Thus the geology text and maps include pre-1987 work as well as 1987 additions.

In 1987, 13.5 line kilometers of an Induced Polarization survey was performed on the Property. The method used was a pole-dipole array with a 25 meter dipole separation.

I.P. anomalies produced by this survey were followed up by 1048.21 meters (3,439 feet) of diamond drilling in 9 holes. Pick and shovel trenching and rock sampling was also performed.

| No. of Samples | Analyses |
|---|---|
| Core | 376 for Au, including 5 for Zn |
| Rocks | 111 for Au, including 4 for Whole Rock. |
| Soils | 18 for Au |
| Stream sediments | 3 for Au. |

TABLE NO. 1

HANK CLAIMGROUP STATUS - 1987

| CLAIM NAME | NUMBER OF UNITS | TAG NUMBER | RECORD NUMBER | RECORD DATE | PRESENT EXPIRY DATE |
|---|---|---|---|---|---|
| HANK1 | 18 | 78941 | 2691 | March 10, 1983 | March 10, 1995 |
| HANK2 | 20 | 78942 | 2692 | March 10, 1983 | March 10, 1995 |
| HANK3 | 20 | 78943 | 2693 | March 10, 1983 | March 10, 1995 |
| HANK4 | 10 | 89285 | 3209 | October 12, 1984 | October 12, 1995 |

Personnel Deployment and Project Dates

One LAC staff member, Mr. Rein Turna was active on the Property during the 1987 season. He was assisted by five temporary employees. Drilcor Ltd. of Delta, B.C., the diamond drilling contractor, provided five personnel including the cook. Mr. Terry Bremmer was the Drilcor foreman.

Peter E. Walcott & Assoc. Ltd. of Vancouver, B.C. provided four personnel for the I.P. Survey. Mr. Garry MacMillan was the I.P. crew's foreman.

Overall coordination and supervision on the Property was the responsibility of Mr. R. Turna. The temporary personnel consisted of:

| Personnel | Graduate of | Time with HANK Project |
|---|---|---|
| Mr. Garry Payie | geology | July 10 - September 25/87 |
| Mr. Tyronne Donnon | geology | July 10 - August 16/87 |
| Mr. Brent Czornobay | geophysics | July 10 - August 16/87 |
| Mr. Chris Rodgers | geology student | July 14 - August 24/87 |
| Mr. Brad Young | geology | July 17 - September 5/87 |

Mobilization and demobilization of LAC personnel were on July 10 and September 24, respectively. The I.P. crew were on the Property from August 1 to 19. The drill crew were on the Property from August 18 to September 24.

Work progress was hindered during September by an injury or by people quitting. Mr. B. Young, working for LAC, quit and was replaced by Mr. Milton Mankowski of AMEX Exploration Services Ltd. of Kamloops B.C. At various times a Drilcor driller and helper quit and a helper was injured. Drilcor had difficulty finding replacements on short notice.

Location and Access

The HANK Claim group is located on the tributary of Ball Creek flowing northeast from Hankin Peak. The southern boundary of Mount Edziza Provincial Park is 13 kilometers to the northwest of the Property. The nearest town, Iskut is 75km to the northeast. Terrace is 315km to the southeast. The Cassiar Highway (No. 37) passes within 15 km east of the property.

Travel time to Iskut from Vancouver by truck is three days. Access to the Property in 1987 was via an Okanagan helicopter based at Bell II, crossing of the Bell-Irving River, 65 km southeast of the Property. An alternate route to the Property can be via Trans Provincial sked air service from Terrace to Snippker Creek airstrip, 65km southwest of the Property. From there a Northern Mountain helicopter based at Skyline Exploration Ltd. Reg property at Johnny Mountain can be used.

The nights before mob and after demob should be spent at the Iskut Valley Inn (formerly Tenajon Motel) at Iskut (phone 234-3411).

Loading and unloading of helicopters during mob and demob dates is done at at an open area alongside the highway a couple of kilometers south the the Burrage Creek crossing. It took a Bell 206 helicopter about 6 hours to move the LAC camp in about 15 trips. Demob of the combined LAC-Drilcor camp took a Bell 206 and a larger Hughes 204 eight hours to accomplish.

Topography:

The area of the HANK CLAIM GROUP is mountainous with moderately steep hillsides. Elevations range from 860 meters in the main creek at the north side of HANK 1 claim to about 1900 meters in HANK 4 claim.

Vegetation consists of sparse coniferous forest in valleys and hillsides. Alphine meadows begin at around 1300 meter elevation.

Drainage is good. All of the property's area is traversed by creeks flowing northwest into the main creek which flows a fairly linear path northeast. Most of the northwest flowing creeks are fairly deeply incised and often form wide deep gorges.

Overburden depth appears to be generally less than three meters over most of the property. Nearer to the mountain tops outcrop is abundant with a relatively thin poorly developed soil or regolith covering. The valley of the main creek is narrow and outcrop often occurs along it.

The main creek's water is heavily silted and undrinkable before it has been allowed to settle. Most of the other creeks on the property are acid and metallic tasting. Stones in the creek beds are often stained orange or coated with a soft white (gypsum?) scum where water runs over them. Ferricrete exists widely over the property.

Logistic support

The helicopter company used was Okanagan Helicopters Ltd. The aircraft was a Bell 206 based at Bell II. Okanagan Helicopters has offices at Smithers and Terrace. LAC personnel used a rented truck to transport samples to the airport at Terrace and to purchase groceries and supplies.

As Bell 206 helicopter was usually used to move the Drilcor drill between sites. The drill move to DDH87-3 site was done by a larger, more powerful Hughes 204 for safety in moving the heavy powerpack in a tight windy spot.

Delays resulted a couple of times when bad weather prevented the helicopter from moving the drill on time. Even when Hank Property's weather was clear, demob was delayed 4 hours due to the helicopters not being able to take off from the fog-bound Iskut River Valley.

Snow was in camp from September 12. The camp had 2.5 feet of snow when the Project was ended.

Surface Sampling

Picks and shovels were used to expose bedrock at various locations, usually under snow until late in the summer. Rock samples were given sample numbers prefixed with "87HANK" to distinguish them from previous years' sampling.

Soil samples were collected in 1987 mainly along the fill-in soil Line 2900N.

Diamond Drilling

One Drilcor Hydradril was used throughout the Project.

Total length drilled was 1048.21 meters (3,439 feet). Core size was B.Q. 376 core samples were analysed.

Most of the core is stored in the coreshack on the Property. Some core boxes from 1987 and 1985 drilling were brought to storage in North Vancouver. Table No. 2 on next page identifies which boxes from which holes are in North Vancouver storage.

Induced Polarization Survey

13.5 km line of an I.P. survey was performed on the Property.

The I.P. method used was a pole-dipole array with a 25 meter dipole separation. Measurements of apparent resistivity and chargeability were made every 25 meters along the lines.

The formal report for this survey from Peter E. Walcott & Associates Ltd. is pending at time of this writing.

Geochemical Laboratory Methodology

Bondar-Clegg & Company Ltd. prepared and analysed all samples. Their methods are summarized on page 7 of the March 1985 Assessment Report.

TABLE NO. 2

HANK PROJECT

Core Boxes in North Vancouver Storage

| Hole No. | Box No. | Intervals Represented (meters) |
|---|---|---|
| DDH84-2 | 1,2,3,4,5,6,7 | 0-56.18 |
| -3 | 1,2,3,4,5,6,7,8,9,10,11,12 | 0-94.49 |
| -4 | 1,2,3,4,5,6,7,8 | 0-59.44 |
| DDH85-4 | 4,11,12,13 | 21.06-28.57, 71.89-91.44 |
| -5 | 10,11,12 | 81.80-99.36 |
| -6 | 2,3,12,13 | 24.67-38.97, 95.40-110.95 |
| -8 | 1,3,4,5,6,7 | 3.66-14.82, 22.13-59.55 |
| -9 | 1,2,3,4,5,6,7,8 | 5.00-62.79 |
| -10 | 1,2,3,10 | 0-26.50, 69.74-76.50 |
| -11 | 4,6 | 32.31-39.53, 46.43-53.26 |
| -12 | 16 | 115.22-119.79 |
| -13 | 1,2,3,4,5 | 5.50-56.39 |
| -14 | 5 | 75.66-83.06 |
| -16 | 3,4,5 | 37.07-58.42 |
| -20 | 3,4 | 33.54-46.42 |
| -22 | 1,2 | 10.51-24.54 |
| -25 | 7,8 | 83.26-97.09 |
| -29 | 2,3,11 | 15.20-30.80, 80.79-88.13 |
| -30 | 2,6 | 13.29-19.91, 40.40-47.20 |
| -31 | 5 | 31.42-38.56 |
| -32 | 2,3 | 22.86-33.66 |
| -34 | 1,2 | 6.10-20.31 |
| -36 | 4 | 48.26-55.38 |
| -37 | 1 | 3.05-12.89 |
| -45 | (boxes 1 to 19) | 7.54-142.65 |
| DDH87-3 | 2,3,4,5,6,7, | 15.03-54.97 |
| DDH87-8 | 14,15,16,17 | 102.49-130.44 |
| DDH87-9 | 1,2,3,4,5 | 0-52.12 |

GEOLOGY

The relevant Geological Survey of Canada publication for the area around HANK Claimgroup is Paper 71-44, Telegraph Creek Map Area, British Columbia, Report and Map 11-1971, 1:250,000 by J.G. Souther.

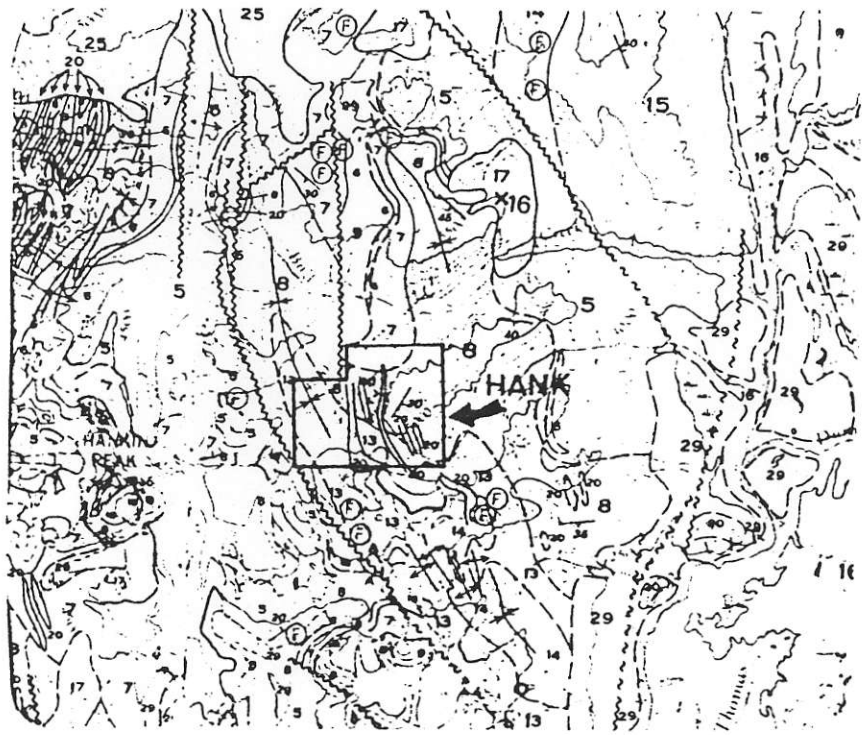



Figure No. 4

Geology around HANK Claimgroup
from Map 11-1971, Paper 71-44
scale 1:250,000

## Rock units on Hank Claimgroup

### ANDS

The ANDS unit is equivalent to Souther's upper Triassic unit 8. Previous reports on the HANK Claimgroup have labled this unit as PYRC or ANPC to reflect its predominantly pyroclastic texture. The ANDS lable is now applied to describe this unit's overall andesitic chemical make-up. Sub-units, whether pyroclastic, flow or otherwise will be identified individually on geology maps as mapping progresses.

Andesitic pyroclastics are the main rock type of the ANDS unit. Agglomerates seem more abundant than tuffs. The pyroclastic rocks are usually green but they are commonly maroon colored too. Black hornblende or augite phenocrysts and their light colored altered pseduomorphs are used to distinguish Altered ANDS rocks from rocks of the FELS unit which they resemble, especially in gouge zones. Clasts and matrix commonly contain white plagioclase phenocrysts.

A variety of pyroclastic rocks occur and none at this time are separated into smaller subunits within the general ANDS like the PPAN flows and EPVC sediments described farther below. But briefly, three pyroclastic subunits or types which may eventually be separable are described below, using their informal field titles:

(1) Maroon Pyroclastic. In Creek 4 between about 1200m and 1250m elevation occurs a very coarse maroon agglomerate with a high percentage of clasts which are quite rounded. Perhaps these maroon rocks are contemporaneous with all other maroon rocks in the ANDS unit -- such as the PPAN subunit and a maroon amygdaloidal flow at Creeks 6-7 and maroon tuffs in Creeks 8 and 10. Thus there may exist an overall maroon horizon

consisting of hematitic pyroclastics and flows representing an overall oxidizing depositional environment. This postulated overall maroon horizon would exist at about in the middle of the stratigraphic column on the Property, with green rocks below and above.

(2) Camp Peak formation. Characterized by green agglomerates. At two places these agglomerates show very rough bedding dipping southeast. These two (type) locations are at the cliffs on Camp Peak and at about 1325m elevation of Creek 7

(3) Bald Bluff formation. Coarse green pyroclastics characterized by large (1/2 cm) square plagioclase phenocrysts. At 87HANK5 chert and jasper nodules and veins occur with nodular marcasite and dolomite growths on vuggy quartz-carbonate veins. The Chert Knoll and carbonate veining below to the northwest may have provided silica and carbonate to meteoric waters to form these unusual mineral formations at this location.

Very minor siltstone beds exist within the ANDS unit. These occur near the lower parts of Creeks 10, 12 and 13.

PPAN: A porphyritic andesite exists within the ANDS unit. It is a crystalline flow rock. Its outstanding characteristics are: very hard, dense, crystalline, massive, usually magnetic, usually maroon colored matrix with black or blue-green augite phenocrysts up to 1/2 cm diam. In the 1984-85 Drilling Area this lithology is footwall to the main auriferous zone of the Upper Alteration Zone.

The important characteristic of the PPAN rock is its density and non-porosity which helps channel rising hydrothermal fluids upward along

faults to the more favourable pyroclastic lithology above. Thus the PPAN here is a footwall marker horizon.

Though only one PPAN layer is identified on the geology map at this time there are likely to be several, alternating with pyroclastics. For example Line 2000N near 1000E shows typical PPAN-type outcrops. This PPAN layer would be separate from the one underlying the 1984-85 Drilling Area. The landslide between Creeks 7 and 8 has brought down PPAN - type rocks from above. These rocks are greener and somewhat less crystalline-looking than the maroon PPAN but are essentially the same.

EPVC: Epiclastic volcanics. These rocks are derived by erosion of lithified or solidified volcanic rocks.

The HANK Property ANDS unit contains examples of volcanic siltstone and sandstone (greywacke) in Creek 4 exposures between about 1325m and 1425m elevations. These EPVC rocks are generally equigranular, well sorted and bedded. In Creek 4 exposures they dip south, contrary to the overall southeast dip of ANDS rocks on the property. This discrepancy may be a function of paleotopography or a minor facies change unconformity. The flat terrain between Creeks 4 and 2 above treeline may be due to comparatively flat sedimentary beds deposited in a minor basin here. South-dipping beds along Creek 4 may be due to drag folds along a fault contact there or due to steepening of the basin's walls along the basin's edges. G.S.C. mapping considers Creek 4 to mark the boundary between their uTr volcanic unit 8 on the northeast side and their lJur sedimentary unit 13 on the southwest side. And that there is a NW striking syncline containing the sedimentary unit. See the geology map on page 6 illustrating the G.S.C.'s version of the geology underlaying the HANK Claimgroup area.

Occurring in Creek 5 is a volcanic conglomerate (or laharic breccia). The field term, laharic breccia has been applied to it so far. Its characteristics are a spherulitic or nodular texture. The "nodules" range from <1/4cm to >1cm dia. Some of these can be confused with the rounded heterolithic conglomerate clasts that exist in this rock. The smaller nodules often have pyrite cores. Some nodules have coarse rings of pyrite concentric about the center. Some vesicles occur in this rock and they may be weathered out nodules. These nodules may have originated as gas bubbles or perhaps as glassy globules in a hot volcanic mudflow. Some nodules also show a glassy outer rim (chill margins?) suggesting these nodules may have existed prior to cooling (quenching?) of the hot mudflow. This laharic breccia has a generally high (5%) pyrite content, disseminated in the matrix and occurring in the nodules. Poor outcrop exposures and strong Alteration in the Lower Altered Zone makes accurate mapping of the EPVC rock difficult. It exists at least as low as sample HANK2138 in the Lower Altered Zone and uphill an unknown distance.

Exceptionally pyritic (up to 10%) outcrops continue uphill. These are finer-grained and lack nodules. They have been mapped as "tuff" or "pyroclastics" but may be a finer equivalent of the laharic breccia below. The eveness (or well-sortedness?) of the pyrite dissemination and clasts may recommend the rock as a volcaniclastic sedimentary rock. Thus Creek 5, from the Lower Altered Zone up may be underlain by a graded epiclastic volcanic for much of the creek length -- conglomerate - laharic breccia below, sandstone above. Both rocks are difficult to recognize as sedimentary rock, if indeed they are.

The existence of the laharic breccia below the Felsite Hill extrusion and related gold mineralization in the 1984-85 Drilling Area there may be significant. In the pocket next page is an article discussing the role of laharic breccia in genesis of volcanogenic mineral deposits above it at felsic extrusive centers.

SEDS

This sedimentary unit is included in Souther's lower Jurassic unit 13. Its type locality on the Property is east of Bald Bluff.

Color: Some layers are green while others are grey or brown.

Composition: Most clasts seem to be andesitic, especially the green layers. Grey and brown rocks' components are probably less mafic. Chert outcrops are quartz.

Texture: Conglomerate, cross-bedded sandstone, greywacke, siltstone and chert are rock-types in this unit. Bedding is usually evident in most of these rocks. The chert outcrops seem usually brecciated, apparently by tectonism.

Structure: Bedding predominantly dips moderately southward. The SEDS sediments are in normal fault contact with Bald Bluff volcanics. This fault strikes northeast and dips steeply southeast. The southern or sedimentary side is a downdropped fault block, at least relative to Bald Bluff. This is indicated by drag folded sedimentary beds adjacent to the fault. The beds shallow out away from the fault.

South of Bald Bluff the SEDS-FELS contact is not visible, being under snow and talus.

The "Line of Cherts" outcrops line up along a northeast trending locus form Creek 3 to Creek 7 with a dent eastward to follow topographic contours past Creek 4 valley. This accords with the northeastward regional strike of the ANDS rocks on the Property. This strike direction indicated by the "Line of Cherts" may represent the regional orientation of all the sedimentary rocks on the Property. The apparent east-west strike seen in some EPVC and SEDS rocks may be relatively minor small scale functions of paleotopography.

Age: Extensive fossil beds southeast of Bald Bluff contain pelecypods identified at the University of British Columbia as Weyla, an index fossil for the lower Jurassic. Petrified wood found in practically the same coarse sandstone outcrops are presumed the same age. Chert Knoll on the northwest side of Bald Bluff had wood fragments too. Thus the "Line of Cherts" is penecontemporaneous with the lJur sediments.

Bald Bluff is older. Like an island, surrounded by sedimentary rocks of lJur age, Bald Bluff seems to have been an erosional remnant of older volcanics during the lower Jurassic.

Felsite Hill is younger. The Felsite Hill extrusive, semi-surrounded by SEDS, with the "Line of Cherts" on its west side and green sedimentary rocks on its south and southeast sides, seems to have been extruded after the lJur onto terrain underlain by these sedimentary rocks. Felsite Hill seems younger than these adjacent sediments because they are not the same color. The green sediments should be derived from the older green volcanics of ANDS and the felsite extrusive came after and partially covered over the sediments.

Environment: The Weyla clams are known to prefer an intertidal environment and thus their occurrence in coarse sands is characteristic. The occurrence of wood fossils in almost the same outcrops thus marks the locality as an ocean-land interface at the time. The cherts show the direction to the ocean (westward). The Weyla, crossbedded sandstone, fossil wood and conglomerate indicate rising land eastward to a terrestrial environment.

DIOR

Souther's post upper Triassic-pre Tertiary unit 18 is represented on the property by the DIOR unit. This is a medium grained equigranular black and white diorite. Mafics make up about 50% of the rock.

FELS

This is Souther's unit 20. The FELS unit occurs in two main areas; east of camp (Felsite Hill) and at the head of Creek 3.

The latter FELS area has not been intensively mapped. These outcrops which are not always under snow are mainly exposed in great cliffs. These cliffs are blood red and bright yellow weathering. Visible from afar are large scale joints suggesting bedding. Some of the felsite examples from here are highly pyritic--up to about 10%.

Felsite Hill is an extrusive center consisting of flows, breccia and pyroclastics. The FELS unit here consists of apparently two main subunits. These are; an older underlying red weathering felsite -- the "Red Felsite". It is overlain by a relatively grey weathering subunit -- the "Grey felsite".

"Red Felsite"

Color: The "Red Felsite" is dark grey in unweathered hand specimens. Weathering discolors the rock beige or light brownish white to about a centimeter depth. Weathered surfaces are a rich brownish red.

Composition: The rock is mainly feldspar. Quartz is present but difficult to distinguish in hand specimens. Pyrite is often a major disseminated component often making up 5% or more of the rock. The "Red Felsite" is considered to be the pyritic member of the FELS unit.

Texture: The rock appears mainly aphanitic, non-crystaline and massive. Small feldspar penocrysts are sometimes visible. Some specimens show rounded or angular clasts up to about 1cm diameter. These clasts are the same color, composition and texture as the matrix and though their boundaries are sharp they are difficult to see. The "Red Felsite" is considered to be partly a flow.

Structure: The "Red Felsite" seems to be a stubby viscous flow mainly, thick in the middle near its source and thinning quickly north, south and east. The west side of Felsite Hill has been truncated by erosion.

"Grey Felsite"

The "Grey Felsite" is more complex than the underlying "Red". Discussion of this subunit of FELS will consider three areas: the central diatreme breccia, the northern "clinkstone" tuff and the southern "greyish felsite" flows.

Central

This area is located at the flat top middle area of Felsite Hill.
Color: The rocks are a medium grey which don't seem to discolor much from weathering.

Composition: The rocks tend to be very silicic, that is approximately of rhyolite composition, high in quartz. Pyrite and mafic content are very low.

Textura: Central area outcrops are "millrock" - like breccia. Breccia clasts tend to appear somewhat rounded, heterolithic and look outstanding in a matrix of quite a different appearance. These characteristics suggest the clasts are non-local -- quite well traveled (up a diatreme) . A one meter erratic boulder on the ground in the area is a piece of the PPAN rock -- footwall to the main auriferous zone -- in the 1984-85 Drilling Area below near camp. Though this PPAN erratic is a very hard rock it is unusually well rounded. This rock did not roll down from any similar formation at a higher elevation. This erratic is considered to be a weathered out clast from the diatreme breccia. The unusual well-roundness of the rock may have been caused by abrasion while traveling up the diatreme.

Structure: The central area breccia is considered to be a breccia pipe or diatreme and marks the actual top middle of an extrusive center. The term "diatreme" is used loosely here as the strict definition requires a mafic composition and downward extension to the earth's mantle. The diatreme extends down at least to the PPAN footwall, the considered source of the erratic clast mentioned above, an approximately 600 meter depth. The shape of the diatreme is not known. It is not known if it is vertical or may plunge northwest to be perpendicular to the bedding of the older volcanics it intrudes.

North

Color: Here the "Grey Felsite" rocks are a light grey and light beige color, with medium grey weathered surfaces. It's not certain if the light beige interior may be the rocks' original color if it is a deeply penetrating weathering discoloration. The beige color is similar to the "Red Felsite's" beige weathering discoloration.

Composition: The rock appears to be largely feldspar. Pyrite and mafic content are very low.

Texture: Two outstanding texture-related characteristics of this rock are its very light weight and distinctive clinking noise when struck -- hence the field name "clinkstone". These characteristics are considered to be functions of the rock's low degree of compactedness or a high microporosity, though the rock does not appear vesicular or frothy. The "Grey Felsite clinkstone" is mainly aphanitic, non-crystalline and massive. Rounded difficult to see clasts and feldspar phenocrysts are sometimes distinguishable as in the "Red Felsite". Some outcrops appear brecciated. The "clinkstone" is a tuff.

Structure: The "clinkstone" forms a thin but fairly extensive layer northward from its Felsite Hill source. These features plus the aphanitic make-up and high microporosity may suggest the rock is an air-traveled and deposited volcanic ash. A felsic flow would be a relatively viscous stubby structure like the "Red Felsite".

South

Color: Here the "Grey Felsite" rocks are darker and also less "grey". Fresh surfaces are faintly maroon-grey. The weathered surfaces are still grey colored especially compared to the "Red Felsite". Hence the field name "greyish felsite".

Composition: The rocks are andesitic. Pyrite content is very low.

Texture: The rocks are fine to medium grained and comparatively crystalline. Flow textures are occasionally evident. These are parallel alignment of feldspar phenocrysts and small scale flow banding. These bands show alternately glassy and aphanitic layers deformed during flow. Sometimes faint rounded (flow breccia) clasts appear to be partly digested or assimilated by the matrix.

Structure: The "greyish felsite" is a flow of limited extent. Chemically and texturally the "greyish felsite" flow is different from the "clinkstone" tuff to the north. Though these two rocks may not be exactly penecontemporaneous they are grouped together in the "Grey Felsite" for the time being as they are both "grey" compared to the "Red Felsite" which underlies them.

Veins and Siliceous Sinter atop Felsite Hill

Vuggy quartz and quartz-barite veins occur in brecciated outcrops in the "Grey Felsite". Frothy-looking host rock occurs at at least one location (87HANK12). The vesicles here appear to be a product of gaseous extrusion rather than weathered out components.

Chalcedony, opal and jasper occur at several sites. At line 2400N near 2000E was found a float piece of siliceous sinter breccia. This piece shows talus cobbles of greenish porphyritic andesite welded together by delicately banded chalcedony.

TABLE No. 3

## Whole Rock Analyses of FELS Unit Rocks

| Sample Number | Representative of |
|---|---|
| 87HANK15 | Crystalline flow rocks of the "greyish felsite" |
| 87HANK17 | "Clinkstone" tuff of the "Grey Felsite". |
| 87HANK33 | Crystalline rhyolite. Considered to be mainly matrix material related to the diatreme breccia. |
| 87HANK34 | The pyritic "Red Felsite". |

The results below are from Bondar-Clegg Report # 127-7686

| SAMPLE NUMBER | ELEMENT UNITS | Al2O3 PCT | CaO PCT | Fe2O3* PCT | LOI PCT | K2O PCT | MgO PCT | MnO PCT | Na2O PCT | P2O5 PCT | SiO2 PCT | TiO2 PCT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R2 87HANK 15 | | 30.30 | 0.19 | 0.30 | 12.30 | <0.03 | 0.03 | <0.01 | 0.19 | 0.07 | 53.03 | 0.95 |
| R2 87HANK 17 | | 13.67 | 0.10 | 0.18 | 5.30 | <0.03 | <0.01 | <0.01 | 0.25 | 0.66 | 78.37 | 0.82 |
| R2 87HANK33 | | 2.31 | 0.02 | 1.73 | 1.40 | <0.03 | <0.01 | 0.05 | 0.15 | 0.14 | 93.10 | 0.75 |
| R2 87HANK34 | | 20.10 | 0.07 | 2.68 | 9.20 | <0.03 | 0.03 | <0.01 | 0.18 | 0.28 | 65.40 | 0.59 |

| SAMPLE NUMBER | ELEMENT UNITS | Totals PCT | Au PPB |
|---|---|---|---|
| R2 87HANK 15 | | 98.26 | <5 |
| R2 87HANK 17 | | 99.36 | <5 |
| R2 87HANK33 | | 99.70 | 10 |
| R2 87HANK34 | | 98.53 | <5 |

The high SiO2 percentages for 87HANK17 and 33 class these rocks as rhyolite (or felsite?). The very high SiO2 for 87HANK33 may suggest the rock is additionally pervasively silicified.

87HANK15 and 34 seem to belong to the andesite class.

What age is the FELS Unit?

Two ages are considered below:

Lower Jurassic:
The FELS unit is not much younger than the lower Jurassic chert line it overlies and is a member of the uTri-lJur volcanic package on the Property:

(1) The dark greenish volcanics in the mountain northeast of Felsite Hill are at a higher elevation. And those volcanics look like the ANDS unit below and they have been grouped together as uTri in G.S.C. mapping. Topographic position suggests the FELS unit is a member of this same volcanic package.

(2) The Altered Zones' great lateral extent (4km) and linearity apparently parallel to regional strike may be difficult to explain without invoking a syngenetic concept. If syngenetic gold-pyrite mineralization can be suggested for the FELS (particularly the "Red Felsite"), the Upper and Lower Altered Zones in the ANDS unit may be similar syngenetic processes -- all belonging to approximately the same age rocks.
(See also: "Mineralization within the FELS ... Syngenetic or Epigenetic? page no. 20).

Cretaceous-Tertiary:
So far, this writer has deferred to the G.S.C.'s wisdom in grouping the Felsite Hill exposure with Cretaceous-Tertiary unit 20 (see G.S.C. Paper 71-44 by J.G. Souther). This writer's own observations are as follows:

(1) The Felsite Hill extrusive lies above a chert outcrop belonging to the "Line of Cherts" (see Geology map). One chert outcrop contained wood fossils correlative with the lower Jurassic fossil-dated SEDS sedimentary unit. Thus the FELS unit is younger than this lower Jurassic line. How much younger?

(2) No FELS rocks have been altered chlorite green by the low grade regional metamorphism that has affected andesitic ANDS rocks topographically lower and higher than Felsite Hill, even though the "Red Felsite" and "greyish Felsite" contain rocks that may be mafic enough to alter to chlorite green. This suggests the FELS unit may be significantly younger than the green rocks of uTri - lJur ANDS and SEDS.

(3) Green uTri volcanic talus was found welded together by siliceous sinter oonsidered to be related to FELS extrusion at Felsite Hill. The suggestion is that older ANDS volcanics exist at a higher elevation merely because the Felsite Hill extrusion happened in a paleotopographic low.

(4) They vuggy veins and frothy "Grey Felsite" rock at 87HANK12 and the lightness of the "clinkstone" tuff may suggest that the FELS unit has not had time to be overlain and compacted or the vesicles to be in-filled.

(5) The existence of the volatile cinnabar at Hank333 on Creek 3 and coincident high Hg and Au on other 1983 rock samples point toward young (Tertiary?) epithermal mineralization.

Mineralization Within the FELS Unit and Older ANDS Unit: Syngenetic or Epigenetic?

The southeast end of Line 2250N is on top of Felsite Hill near the diatreme. Soils here are anomalous in gold, being >100 ppb. This gold anomaly is likely genetically related to the extrusive center. Rock sampling in the "Grey Felsite" does not indicate that this pyrite-poor later extrusion is auriferous. However the pyrite-rich "Red Felsite" was uniformly highly anomalous in gold in DDH85 holes 29, 30,33, 35. Anomalous core here seemed to have no significant veining associated with high gold values. Perhaps this gold and disseminated pyrite is syngenetic with the "Red Felsite" magma.

More concentrated gold values are associated with veins in ANDS host rocks. The greater gold precipitation at these sites may be due to coincident favourable structure (high porosity) and correct temperature-pressure conditions.

Epigenetic features such as concentration of gold near veins and in certain structural traps spanning stratigraphies may be comparatively small scale (though important) details in a mainly syngenetic scenario. FELS volcanism may have remobilized pre-existing mineralization from the older Alteration horizons. The remobilized gold may have been incorporated into FELS magma and redeposited at veins and stratigraphically higher, adjacent to FELS extrusion.

Possibly the most intense gold concentration may be in the FELS diatreme which has not been drill-tested. See Figure No. 5 on page 34 proposing a model for this mineralization.

## The (Sercite-Carbonate-Pyrite) Alteration Zones

### Lower Alteration Zone

Boundaries as defined by outcrop and I.P.: the Lower Zone has fairly well defined boundaries in outcrop exposures in creeks. Strong chargeability anomalies correlate with Lower Zone geological mapping. These chargeability anomalies were sometimes larger (or enlarging with depth?) than outcrops suggested. Low resistivity anomalies also occurred. The ANDS unit is the host rock.

Canyon exposures of the Lower Zone are obvious even in an airphoto. Creeks 3, 4, 8 and 9 have eroded great gossanous canyons over the Lower Zone because the Altered rock there weathers very quickly and deeply. Creeks 5, 6 and 7 are too small to erode such canyons but outcrops in these creeks expose the Lower Alteration Zone to various degrees nevertheless.

The north end of the Zone runs into the Hemlo Creek linear (a major fault?) and seems to end there. The south end of the Zone is difficult to map. It apparently peters out before reaching Creek 2. But Altered rocks are extensive in Creek 3, starting at about the 1060m elevation and going on up. An apparently unAltered interval around the 1200m elevation seems very narrow. The Property's Lower and Upper Alteration Zones seem to almost merge in the Creek 3 area.

The trend of the Lower Zone appears to parallel the regional strike of the rocks on the Property.

The appearance of the Lower Zones' outcrops from a distance are strongly gossanous and they resemble the rusty outcrops of the FELS unit, though a blood red hematite color is more characteristic of weathered FELS rocks while Altered rocks of the Zone are limonitic brown and yellow. Small greenish relatively unAltered "clots" exist within the Alteration Zone. See Appendix No. 1 for photographs showing the appearance of Lower Alteration Zone rocks.

The appearance of Altered rock typically is bleached greyish white. Sometimes in areas of more moderate Alteration, original rock textures such as agglomerate clasts or augite phenocryst pseudomorphs are discernible. More often the rock is soft and crumbly and textures are largely destroyed.

The term Alteration is used to define a specific alteration - that is the kind of alteration that occurs on the Property and is mainly localized in the Lower and Upper Alteration Zones. The Alteration is regarded as a hydrothermally induced intense (propylitic?) alteration.

Sericite-carbonate-pyrite mineralization are the main Alteration product. These occur pervasively to varying degrees in Altered rocks. Carbonate is usually iron-rich according to stain tests. It also exists as the main constituent in veins with sulphides and sometimes with quartz or barite. Most pyrite is disseminated. Pyrite also concentrates in fractures or vein margins. Silicification seems to occur on a more local scale. The HANK 331 showing on Creek 3 has a spotty silicification around it. Opalized breccia occurs in Creek 6. Intensive mapping would be required to locate and characterize quartz occurrences in the Lower Zone. Epidotization is evident in the least Altered rocks of the Zone. Epidote is probably an early stage of the Alteration and becomes obliterated in the more intensely Altered areas.

Veins in the Lower Alteration Zone are mainly carbonate, often with sulphides associated along margins. Barite and quartz also occur, either by themselves or mixed with other gangue and sulphides. The average abundance of veins in the Zone is not great, being 1% or less.

Some High Geochem Values in the Lower Alteration Zone

Creek 3

| HANK Sample No. | Au oz/ton | Ag oz/ton | Remarks - width |
|---|---|---|---|
| 331 | .354 | 26.40 | 1m grab from outcrop with quartz veining. |
| 2046 | 2.161 | 1.53 | 5cm wide carbonate - sulphide vein. |

Creek 5

| HANK Sample No. | Au oz/ton | Ag oz/ton | Pb % | Zn % | Remarks - width |
|---|---|---|---|---|---|
| 2127 | 3240(ppb) | | 6.00 | 8.5 | Grab of siliceous float. |
| 2132 | 2700(ppb) | | 5.00 | 10.20 | Grab from sulphide pocket. Appears to be in place. |
| 2200 | 2.979 | 31.22 | 13.60 | 21.80 | Grab of sulphide-carbonate (+barite?) vein float. |
| 35365 | 1.262 | | | 14,400 (ppb) | 1.5m core sample in DDH87-3 is located underneath the surface showing. |

Creek 7

| HANK Sample No. | Au oz/ton | Ag oz/ton | Pb % | Zn % | Remarks - width |
|---|---|---|---|---|---|
| 2229V | .53 | 22.710 | | | 10cm wide sulphide vein. |
| 2229 | 2500(ppb) | | 1.39 | 2.32 | 5m chip sample includes above vein. |
| 2223Vein | .540 | 16.00 | 4.38 | 19.30 | 36cm wide quartz-sulphide vein. |
| 2223V | .786 | | .94 | 24.10 | Cu = 3.42%. Same vein as above. Grab from about 1m farther along. |

Upper Alteration Zone

Boundaries as defined by outcrops and I.P.: The Upper Zone's boundaries are fairly shown in outcrops only in Creeks 10,11 and 12. Northward, in Creeks 13 and 14 the Zone appears to narrow out. Southward, in Creeks 1 to 8 the Zone is exposed, though poorly because of overburden or due to the creeks being too small at the higher elevations to erode canyon exposures as they do for the Lower Zone. The south end of the upper Zone seems to be possibly merged with the Lower Zone at the tops of Creeks 1 and 2, where a DIOR (diorite) plug terminates the Zones' continuance south. The ANDS unit is the host rock.

Chargeability and low resistivity anomalies occur in areas believed to be underlain by the Upper Zone. The upper flat area between Creeks 3 and 4 had no strong I.P. anomalies. I.P. Lines 600N and 400N pick up the Upper Zone again. The intervening flat area's weak I.P. and soil geochem response may be due to a change in lithology here. A small EPVC sedimentary basin is postulated for this area.

DDH87-6 seems to show that EPVC sedimentary rocks overly more highly anomalous Altered agglomerate. DDH87-7 and 8 show that Alteration and mineralization can be as high in EPVC rocks as they are in other ANDS rocks elsewhere. Though the Alteration may prefer certain structures or lithologies within ANDS, it is not absolutely precluded from comparatively unfavourable ones such as PPAN (see 1985 drilling results in March 17, 1986 Report) or the EPVC basin.

The trend of the Upper Zone seems parallel with the regional strike of the rocks on the Property and with the Lower Zone. Though the Zones seem to merge near their south ends this is not proved.

Alteration seems to exist along strike in somewhat different lithology types on the Property. Thus the Alteration Zones may represent time-confined events, though in detail they can transcend facies boundaries.

The appearance of the Upper Zone's outcrops and rocks are much like those of the Lower Zone. The overall intensity of Upper Zone's Alteration is less and unAltered "clots" are larger and more common than in the Lower Zone. So the area mapped as the Upper Alteration Zone is an area partly suggested by soil and I.P. anomalies and interpolations between outcrop areas. In the 1984-85 Drilling Area however, Alteration and gouge below Felsite Hill are most intense.

Alteration mineralization in the Upper Zone are of the same types as in the Lower Zone. As in Lower Zone occurrences, gold and sulphides exist in higher concentrations in areas of greater veining.

Vein mineralization and overall vein abundance in the Upper Zone are similar to the Lower Zone. However, in the 1984-1985 Drilling Area certain areas had zones of major veining (see drill cross sections of March 17, 1986 Report). Banded siderite-barite veins are important in this area. Quartz seemed more abundant in drill core than in veined outcrops -- a vertical zonation of gangue perhaps. As usual on the Property, metals were more in host rocks and concentrated along vein margins than within the vein's interiors.

Some high Geochem Values in the Upper Alteration Zone

Creek 3

On Line 600N near 1200E occurred high soil geochem and chargeability anomalies. Outcrops' geochem averaged 475 ppb Au for 105 meters. Here twenty one 5m chip samples ran between 220 and 1150 ppb Au. DDH87-7 and 8 here penetrated (sedimentary?) volcaniclastics that had consistently highly anomalous 100m lengths similar to the above surface sampling.

Creek 4

Samples 87HANK202 to 211 between 1300-1325m elevation averaged 850ppb Au for 50 meters. The best one of ten 5m chip samples ran 3900 ppb Au. This section may not be part of the Upper Alteration Zone (see A Middle Alteration Zone? - Creek 4, page no. 26).

Samples 87HANK225 and 226 near 1425m elevation ran 800 and 2600 ppb Au respectively, representing 10 meters. I.P. was weak here. DDH87-5 and 6 here penetrated weakly geochem-anomalous EPVC sediments before getting into somewhat better agglomerates in hole 6. Au was 1700 ppb at hole 6's bottom.

Creek 5

In the 1984-85 Drilling Area, surface and drill core sampling returned high Au values associated with pyritic rocks containing veins. In 1984 a trench at Creek 6 averaged .074 oz/ton Au for 26 meters. DDH85-45 had samples averaging .17 oz/ton Au representing about 21 meters length from 39.01 to 60.35 meters. These widths should not be considered perpendicular to mineral trend. These two samplings are oblique across their mineralized pockets or chutes. The March 17, 1986 Report can be consulted for the complete drilling and trenching results in this area up that date. See cross sections (Figure Nos. 13 and 14 ) of this report for DDH87-1 and 2 results.

Creek 10

Sample HANK 2701-2714 represent 14 meters averaging 1630 ppb Au. This is at the 1240m elevation. Rocks here are spottily silicified. The sampling direction is considered to run obliquely over the silicified-mineralized trend.

Creek 14

Sample HANK 1154 ran 8200 ppb Au. This was a grab of quartz-carbonate sulphide vein float from talus falling from the probable sloughed-in showing. Altered rocks of the narrowed out Upper Alteration Zone crop out here and soils are highly anomalous.

A Middle Alteration Zone?

Outcrops highly anomalous in Au exist between the recognized Lower and Upper Alteration Zones. 1985 drill core had high or anomalous Au confined to narrow (shear) zones in footwall PPAN rocks. Thus Altered rock and Au mineralization straddles the stratigraphic succession on the Property. The scenario is; rising hydrothermal solutions preferentially deposit minerals within certain structural-stratigraphic traps - the Alteration Zones - but deposition can occur in between too, along the hydrothermal channelways.

The two major Alteration Zones are the Lower and Upper. There may be third, (Middle) Zone. Overall alteration in this Zone is so comparatively weak that it is barely worthy of the designation "Altered". I.P. was successful in defining a definite weak chargeability zone.

- A weakly gossanous canyon in Creek 8 below about 1300m elevation has anomalous soils around it.

- In Creek 7 at about 1415m elevation a 4 cm carbonate-sulphide vein had .229 oz/ton Au uphill of a PPAN outcrop (see sample HANK 4148A on Figure No. 6 of March 17, 1986 Report). Outcrops were anomalous for 30 meters here.

- In Creek 6 between about 1385 and 1400m elevations, anomalous outcrops occurred over about 50m distance. Here, the best samples, HANK4174 and 4173 ran .051 and .086 oz/ton respectively. These were 5 and 3 meter samples containing small quartz-sulphide veins. The outcrops were greenish and apparently Altered only adjacent to vein occurrences. A soil sample here ran 7180 ppb Au.

- In Creek 6 at 1300m elevation a silicified gouge zone in green unAltered rock returned Au values up to 2500 ppb Au. A soil sample here ran 3600 ppb Au.

- In Creek 5 at 1350m elevation an Altered outcrop with carbonate veining averaged 1100 ppb Au for 9 meters in Samples 87HANK288, 289.

- In Creek 4 a comparatively weak Alteration Zone was recognized in 1984 in a canyon between about 1250 and 1325 elevations. This was dubiously correlated with the Upper Alteration Zone though it wasn't quite along strike. Trenching in 1987 exposed the Upper Zone above the 1415m elevation. The weak Zone at 1250 to 1325m may be a Middle Alteration Zone. Samples 87HANK202 to 211 between 1300-1325m elevation averaged 850 ppb Au for 50 meters, where the best sample ran 3900 ppb Au.

- Anomalous soils on line 1400N, 1600N and 1800N below Camp Peak's green cliffs don't seem to be caused by the Upper Zone which is on the other side of Camp Peak. A Middle Zone may be indicated here by the soils.

- The exceptionally long trend of Altered Rocks along Creek 3 may be the result of merging of not only the Upper and Lower Zones but also the Middle Zone.

- Weak but definite chargeability anomalies on I.P. lines may be correlate with a weak Middle Alteration Zone. These weak anomalies are at approximately:

| | | |
|---|---|---|
| Line | 2900N | 1100-1200E |
| Line | 2600N | 750-900E |
| Line | 2000N | 1200-1300E |
| Line | 1800N | about 1000E |
| Line | 1600N | 950-1050E |
| Line | 1400N | 1050-1250E |
| Line | 1200N | 1000-1250E |
| Line | 1000N | 550-925E (includes Lower Zone) |

## DISCUSSION OF CROSS SECTIONS

Before beginning it's necessary to explain the numerical values given to Alteration and fracture intensities in the holes' geologic logs portrayed on the cross sections. The intensities are on a 0 (lowest) to 10 (highest) scale. This copies International Geosystem Corporation's Geolog System

The scale for fracture intensities are as follows:

| Value | Fractures per meter | Description |
|---|---|---|
| 10 or X | 100 | shattered |
| 9 | 81 | extremely well fractured |
| 8 | 64 | very well fractured |
| 7 | 49 | well fractured |
| 6 | 36 | fairly well fractured |
| 5 | 25 | moderately fractured |
| 4 | 16 | fairly lightly fractured |
| 3 | 9 | lightly fractured |
| 2 | 4 | very lightly fractured |
| 1 | 1 | slightly fractured |
| 0 | 0 | unfractured |

The above scale is also used for Alteration intensity as follows:

| Value | Description | |
|---|---|---|
| 10 or X | exceptionally high amount | Generally, 9 or 10 are fault gouge. 6 to 8 is the normal range of Alteration Zone rocks. 5 and lower are not considered to be alteration Zone intensity though "clots" of such unAltered rock exist in the Zone. 6 and up the rocks are grey with no green colouring included. 5 can be mixed green and grey. 4 and down is green or maroon with no grey included and the rock is hard. 5 can be hard or soft. 6 and up the rock is almost always very soft and crumbly. Though pyrite is generally higher in Altered rocks than in unAltered rocks, it is influenced much by presence of shears or zones of veining. |
| 9 | extremely high | |
| 8 | very high | |
| 7 | high | |
| 6 | fairly high | |
| 5 | moderate | |
| 4 | fairly low | |
| 3 | low | |
| 2 | very low | |
| 1 | extremely low | |
| 0 | nil | |

Some Abbreviations and symbols are also explained here:

| | | | |
|---|---|---|---|
| Alt | Altered | MN | manganese |
| ANAG | andesitic agglomerate | OPT,oz/ton | ounces per ton |
| Au | gold | OVB | overburden |
| BO | bornite | ppb,ppm | parts per billion, parts per million |
| BXX, BRXX | breccia | | |
| C | carbon | | |
| CB | carbonate | Py | pyrite |
| CP | chalcopyrite | QZ | quartz |
| FELS | felsite | RHYL | rhyolite |
| GG | gouge | SI | silicification |
| GN | galena | SP | sphalerite |
| HE | hematite | /V | vein |
| LI | limonite | / | orientation of vein |

Colour Code for Cross Sections

| Veins % | Colour |
|---|---|
| >10% | heavy blue |
| 2 1/2 to 10% | light blue |

| Pyrite % | |
|---|---|
| >5% | wide yellow bar |
| 2 1/2 to 5% | narrow bar |

| Gold | | |
|---|---|---|
| 1500 ppb (.044 Troy oz/Short Ton) | wide red bar | (NOTE: if a sample is analysed twice and the results disagree the average is taken and accordingly assigned a wide or narrow red bar). |
| 500 ppb (.015 Troy oz/Short Ton) | narrow red bar | |

The following discussion is mainly for 1987 drilling. 1984-85 drilling results are found in the March 17, 1986 Report.

- Figure No. 13

Cross Section 200m was revised by the addition of hole DDH87-1. The maroon porphyritic andesite-agglomerate contact apparently dips into the hill at about 30° angle. As in previous holes, 87-1 shows high gold values to occur in the overlying agglomerate in more strongly Altered zones together with greater veining and pyrite.

- Figure No. 14

Cross Section 160m was revised by the addition of hole DDH87-2. Except near the top and the 98m mark, hole 87-2 was mainly unAltered and gold values were low. The hole appears to have penetrated the footwall andesite. The wide Alteration zone with high gold values in hole 85-13 was not duplicated in 87-2. It may be that the zone in 85-13 is correlative with the 80 to 100m section of 87-2 where greater veining, pyrite and gold occur. And thus this zone is indicated to be vertical as may also be suggested by vein orientations at 80 to 100m in 87-2.

- Figure No. 15

Hole DDH87-3 and 4 are shown with 1984 surface sampling. This is in Creek 5, Lower Alteration Zone with a strong I.P. response. The unAltered-Altered agglomerate contact appears to dip into the hill at about 45° angle. Sulphide showings and high gold values in hole 87-3 correlate with like results above at surface. The best sample in 87-3 had 1.262 oz/ton gold over 1.5 meters. The average abundance of pyrite and other sulphides in the upper 2/3 of this hole seem greater than in other holes on the property.

Hole 87-4 had strong Alteration and occasional sphalerite throughout its length. The highest gold value was 2400 ppb over 3 meters.

- Figure No. 16

Holes DDH87-5 and 6 are shown with 1987 surface sampling. This is in Creek 4 Upper Alteration Zone. The high gold results and Alteration of surface samples 87HANK225, 226 were not duplicated in hole 87-5. This hole appeared to be in volcaniclastic sedimentary rock.

Hole 87-6 appears to have penetrated through the sedimentary rock to underlying agglomerate. Creek 4 may be an unconformity contact between (ANDS) agglomerate to the north and an (EPVC) sedimentary basin to the south. The bottom 3 meters of hole 87-6 ran 1700 ppb gold.

The low I.P. response in this area may be explainable by the generally low pyrite content of the sedimentary rocks. The underlying agglomerate may have been a better host for hyrdothermal deposition.

- Figure No. 17

Holes DDH87-7 and 8 are shown with 1987 surface sampling. The Altered rocks here are considered to be a part of the Upper Alteration Zone. A strong I.P. target occurred here. Rock in the trench and holes are volcaniclastic but Alteration makes it difficult to determine if the rock is epiclastic (sedimentary) or a primary volcanic.

Notable are the consistently highly anomalous gold results throughout the trench and holes. These gold values do not seem to be closely reliant on veining though zones of veining do occur and the best gold result in 87-7 are with greater veining.

- Figure No. 18

Hole DDH87-9 targeted an I.P. anomaly. The site was located on a morraine. Shifting talus bound up the drill rods and made progress difficult. Pyrite and gold content of the core was erratic.

## RECOMMENDATIONS

### for Lower Alteration Zone

The on-strike continuance of gold-sulphide mineralization in DDH87-3 and surface sampling (See Figure No.15) should be tested. The Lower Alteration Zone is also a strong IP anomaly.

High gold values associated with base metal sulphides in veins occur from Creek 3 to 7 (see Some High Geochem Values in the Lower Alteration Zone, page nos. 22,23). Considering the good correlation of Zn, Pb, Cu sulphides with Au, analysing for these pathfinder elements may be useful. For example, Au results in DDH87-4 should not be considered disappointing as sphalerite occurred throughout the hole. Continued down-dip drilling is recommended here.

### for I.P. Targets

Not all IP targets were drill-tested in 1987. The Lower Alteration Zone IP anomaly should be explored along strike. IP anomalies in the Upper Alteration Zone at Creeks 10 to 12 need drill testing. A more precise selection of IP drill targets await consultation with the geophysical report from Peter E. Walcott & Assoc. Ltd. (report pending).

### for Building a Trail

A trail should be built on the Property using a tractor similar to the one that was used in 1985. That one was a John Deere 450 bulldozer with a backhoe. The diamond drill can then be pulled between drillsites. This would be a more reliable way to move the drill than by helicopter. Helicopter moves were sometimes delayed by weather. Also, the Bell 206's pilots complained that the drill's powerpack was too heavy and every landing with it was practically a crash landing. The backhoe would be necessary for surface sampling and perhaps in trail building or maintenance. Figure No. 3 shows the approximate location of the proposed trail.

for 1984-1985 Drilling Area

See Figure No. 13 (Cross Soction 200m). Step 40m uphill (toward southeast) of hole 85-5. Here a 200m hole should be drilled (Azim/dip = 315°/-45°) to test the down-dip continuance of the auriferous zone located in the middles of holes 85-45 and 87-1 and bottoms of 85-5 and 85-9. It is suggested that approximately 60m of porous agglomerate over the footwall PPAN andesite is the host structure or lithology. As this structure dips southeast into the hill, still deeper drilling is necessary from drillsites uphill to reach the PPAN marker.

The importance of the above mentioned 60m zone over the PPAN marker became apparent toward the end of 1985 drilling. Deeper drilling, for example on Cross Section 160m (see Figure No. 14) may achieve high gold values just above the PPAN marker.

Cross Section 240m of the March 17, 1986 Report may recommend deeper drilling, for example. A 200m hole sited uphill of hole 85-21 should be drilled to reach the PPAN andesite. The ground surface is too steep and soft to set up a drill between holes 85-4 and 32. Therefore set up at 85-32 site and drill steeply into the hill.

for Felsite Hill

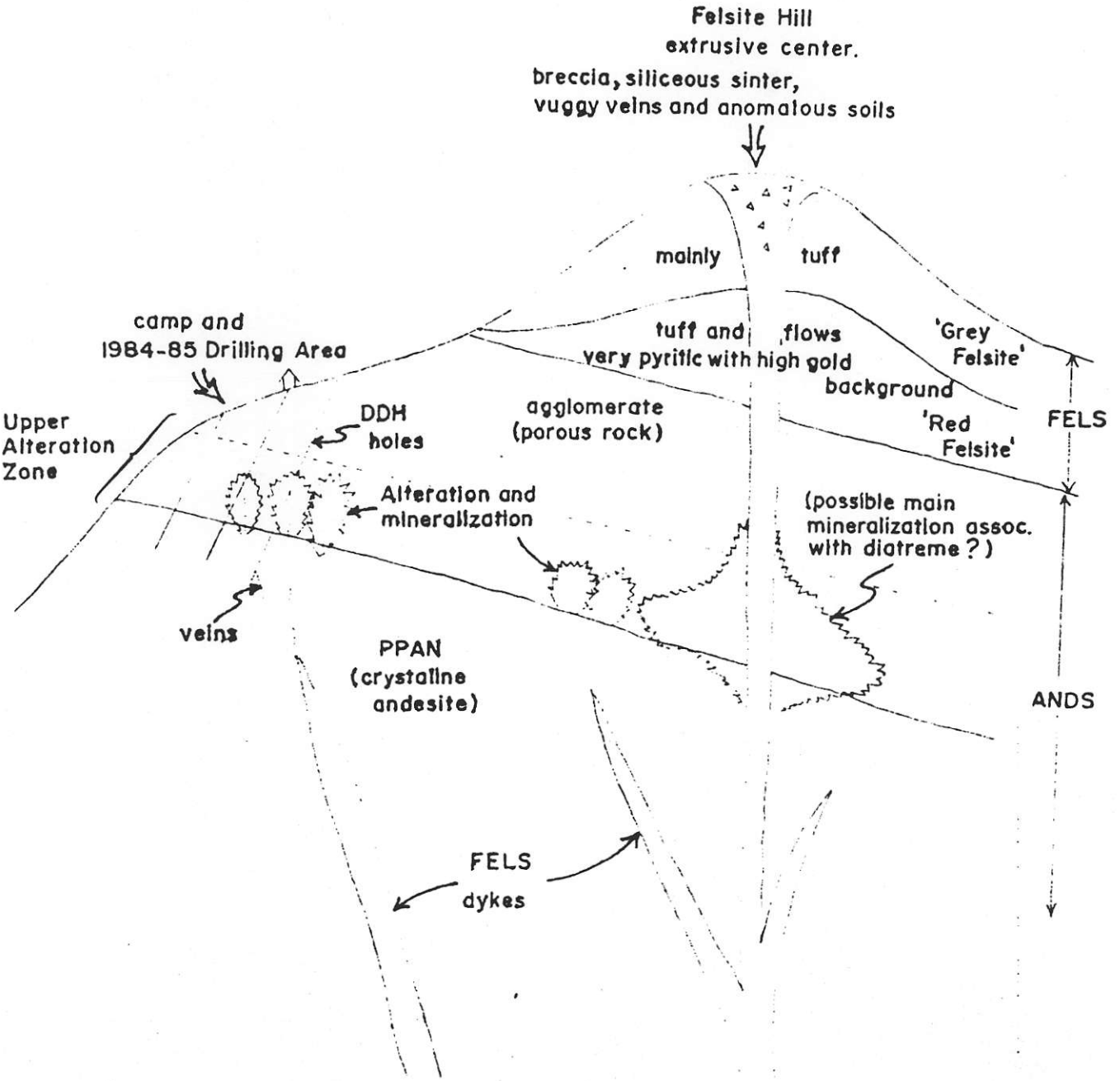
Deep vertical drilling should be done on Felsite Hill. Several holes here would be needed. They would be between 500 to 800 meters long depending on the dip of the PPAN footwall - ANDS agglomerate contact. This contact would be the drill target.

It is suggested that the Felsite Hill diatreme may be the main locus of gold deposition. The 1984-1985 Drilling Area mineralization is off to the side of the extrusive center and may be comparatively minor.

Figure No. 5 on next page illustrates the model proposed for the Felsite Hill and Drilling Area and possible main mineralization in that area.

Figure No. 5

Felsite Hill and 1984-1985 Drilling Area
Model
Proposing main mineralization to be
under Felsite Hill.




Looking Northeast

## REFERENCES

### for the Hank Claimgroup

Geophysical report by Peter E. Walcott & Associates Ltd., 1988 (Report in progress)

Report on Diamond Drilling and Trenching on the Hank Claimgroup in 1985 by Rein Turna, March 17, 1987

Geological, Geochemical and Diamond Drilling Assessment Report on the HANK CLAIM GROUP by Rein Turna, March 1985

Geological and Geochemical Assessment Report on the HANK CLAIM GROUP by Rein Turna, February 24, 1984

A Geophysical Report on a Induced Polarization Survey for LAC Minerals Ltd. by Peter E. Walcott & Associates Ltd., January 1985.

Wall Rock Alteration and Vein Mineralogy of the Hank Epithermal Gold Prospect, (Bachelor Thesis) by Eric Ochs, April 1985.

for drill hole logs, field notes and maps see the HANK file in LAC office.

### GSC Report and Reconnaissance Work

Telegraph Creek Map Area, British Columbia, by J.G. Souther (1971) Geological Survey of Canada Paper 71-44 and Map 11-1971(1:250,000 scale).

Report on 1987 Regional work by Rein Turna, 1988 (report in progress)

Report on Reconnaissance Work and Property Evaluations by LAC Minerals Ltd. by R.F. Brown, March 1984.5

for field notes and maps see the HANK file in LAC office.

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10 April 1989

Mr. J.S. Drever
Blackdome Mining Corporation
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M5H 1T1

FAX - (416) 869-36[redacted]

Dear Scott:

The following four pages are parts of a sketch plan of drilling on the lower alteration zone at HANK, and a revised long section, which now shows true thicknesses. If you have any questions, please call. I have set up an appointment to look at the core this afternoon.

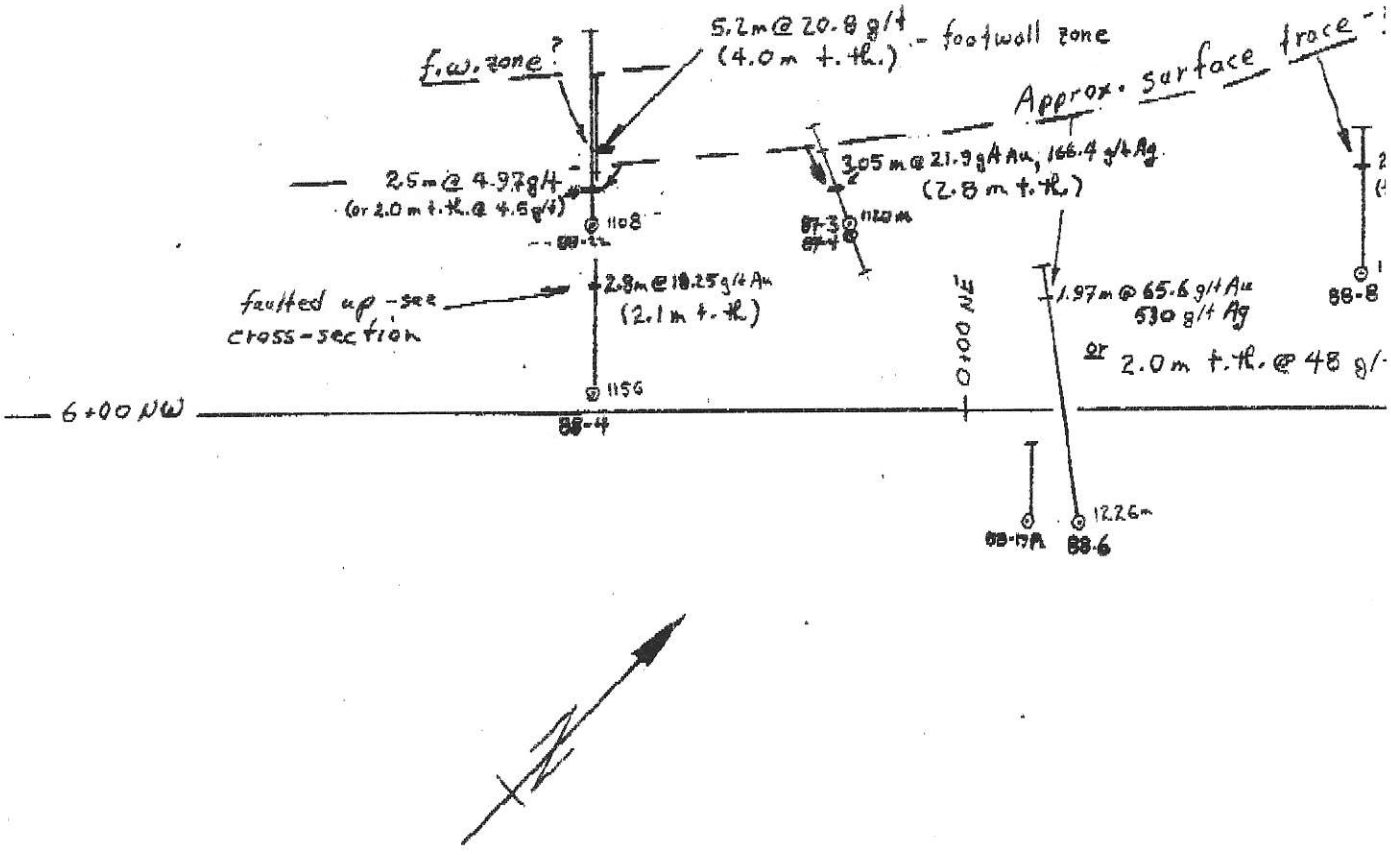
Giles/

G.R. Peatfield

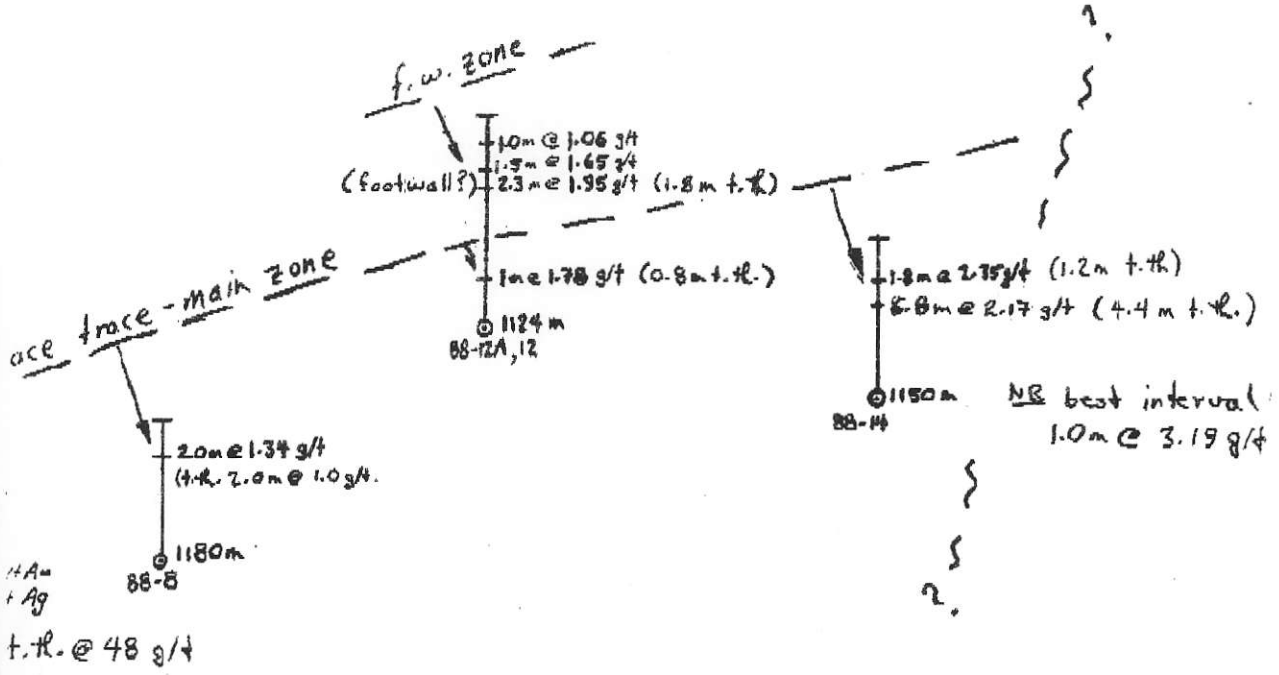
GRP/

attachments

(2)


f.w. zone?
5.2m @ 20.8 g/t
(4.0 m t.th.)
- footwall zone
Approx. surface trace
2.5m @ 4.97g/t
(or 2.0 m t.th. @ 4.5 g/t)
1108
88-12
3.05 m @ 21.9 g/t Au, 166.4 g/t Ag
(2.8 m t.th.)
87-3
87-4
1120 m
faulted up - see cross-section
2.8m @ 18.25 g/t Au
(2.1 m t.th.)
1.97m @ 65.6 g/t Au
530 g/t Ag
or 2.0 m t.th. @ 48 g/
88-8
0+00 NE
1156
6+00 NW
88-4
12.26m
88-17A
88-6

(3)





BLACKDOME MINING CORP

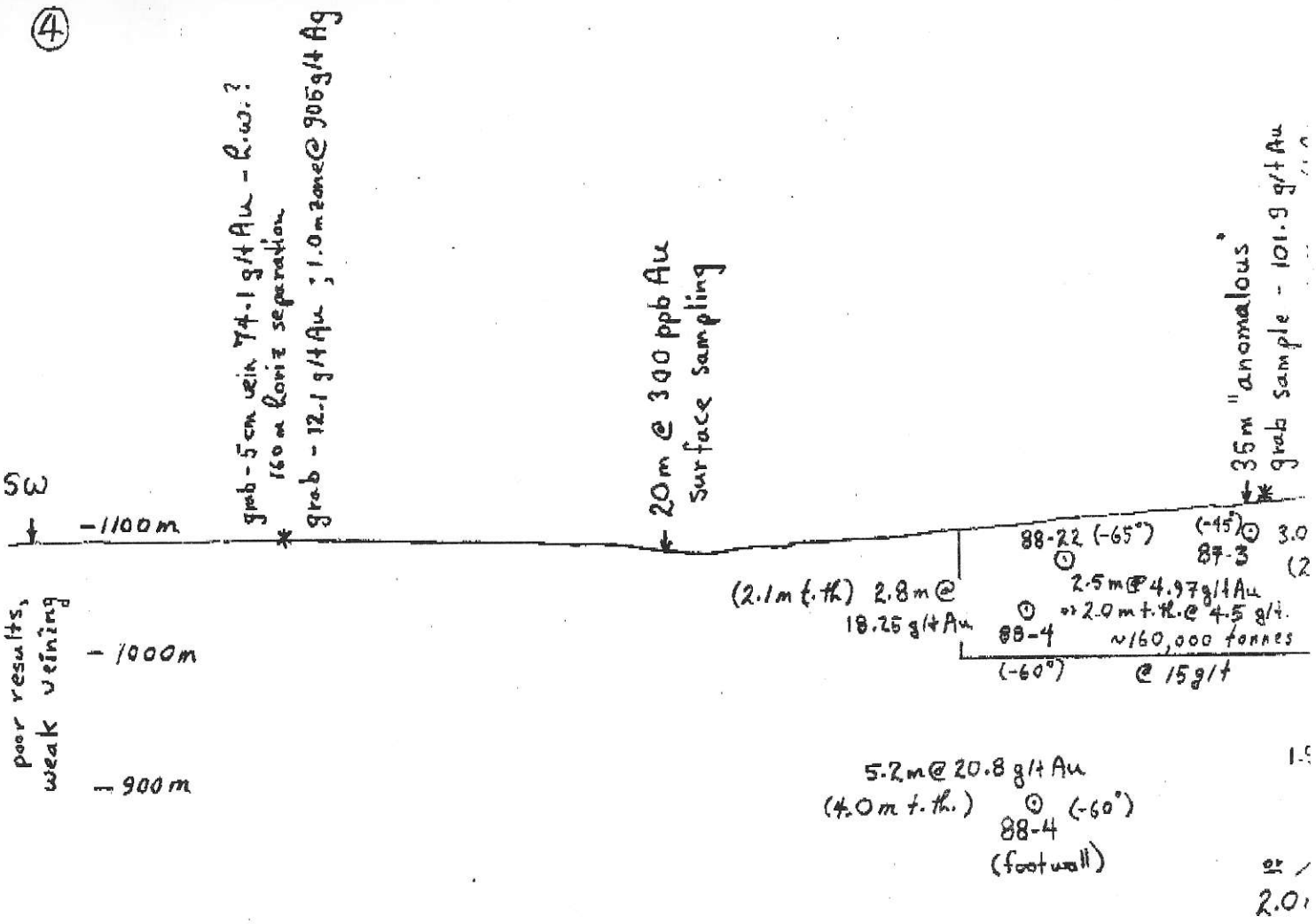
"HANK"

Sketch Plan - Lower Zone

| Date | N.T.S. | Scale |
|---|---|---|
| Apr. 1989 | 104G/11B,2E | 1:5,000 |

G.R. Peatfield Ph.D., P. Eng. Figure

④




Section dips ≈ 70° to SE

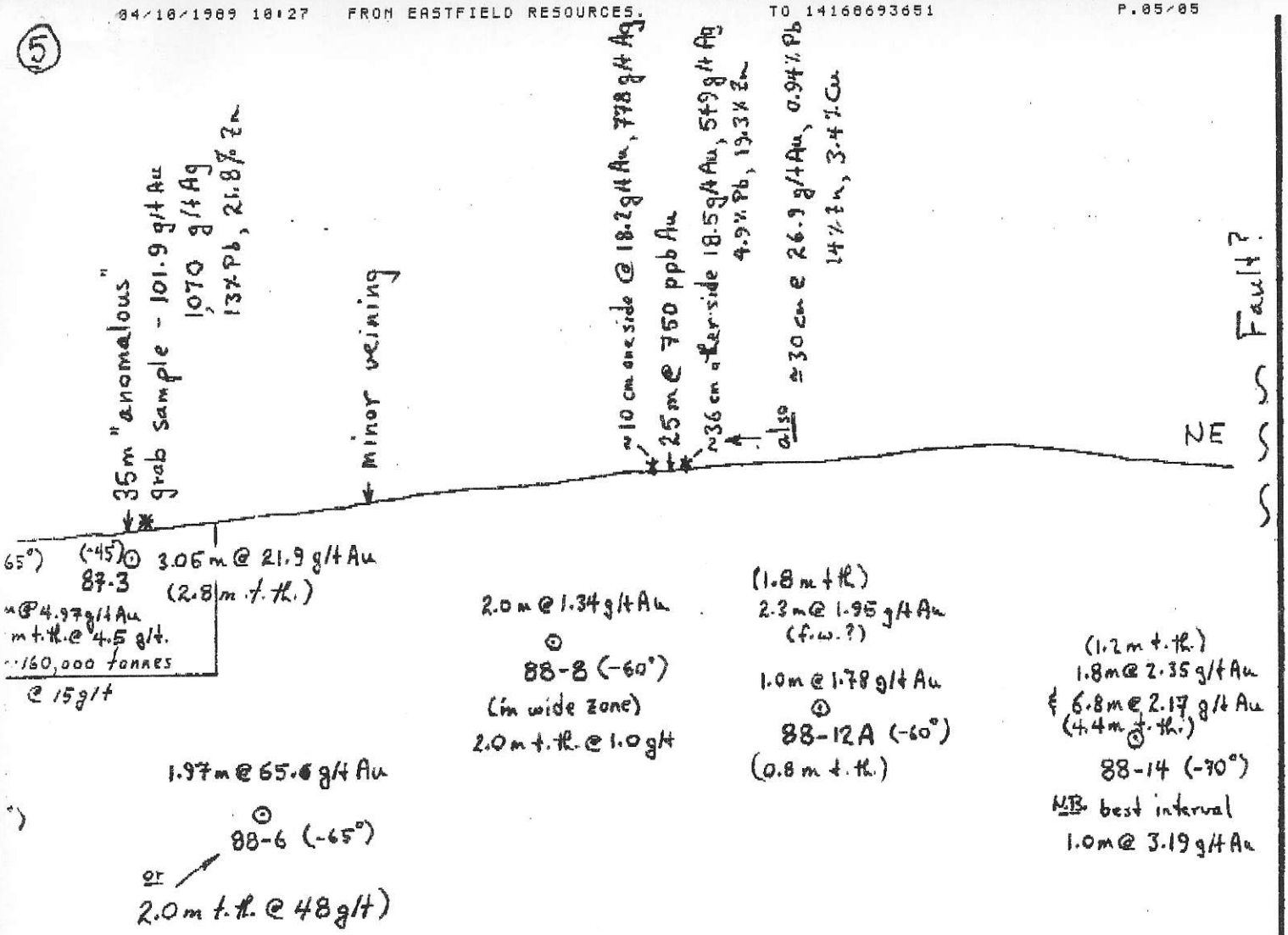
Ground slopes steeply to NW

Holes are drilled steeply to NW

Note: Section is approximate and preliminary.

G.R. Peatfield 08 April '89 (Revision #2)

(5)




| BLACKDOME MINING CORPORATION | | | |
|---|---|---|---|
| "HANK" | | | |
| Long Section in Plane of Structure(s) | | | |
| Date Apr. 1989 | N.T.S. 104G/1W, 2E | Scale 1:5,000 | |
| G.R. Peatfield Ph.D., P.Eng. | | Figure | |

(Revision #2)