092943

MAP NO.: 115 I 3	**ASSESSMENT REPORT** X **PROSPECTUS** **CONFIDENTIAL** X **OPEN FILE**	**DOCUMENT NO:** 0929~~[illegible]~~ **MINING DISTRICT:** WHITEHORSE **TYPE OF WORK:** GEOLOGICAL TRENCHING

REPORT FILED UNDER: AURCHEM EXPLORATION LIMITED

DATE PERFORMED: JUNE 1 - SEPTEMBER 30, 1990 **DATE FILED:** DEC 3, 1991

LOCATION: LAT.: 62°05'N **AREA:** MT NANSEN

LONG.: 137°10'W **VALUE $:** N/A

CLAIM NAME & NO.:

WEDGE 5-10, 15
RAS 1-4
MSL
BIT 1-3, 5

WORK DONE BY: MARK LANGDON; AURCHEM EXPLORATION

WORK DONE FOR: AURCHEM EXPLORATION LIMITED

DATE TO GOOD STANDING:

REMARKS: Twelve trenches were dug on the Eliza Creek zone. A detailed magnetometer survey was conducted in the trenches to help interpret geology.The grid was extended to the west and north. An IP survey was conducted over the Eliza Creek zone. 200 soil samples were collected on the property. Also, seven drums of vein material were collected for future metallurgical work.

Indian and Northern Affairs Canada / Affaires indiennes et du Nord Canada

M.R. file no	
R.M.M.R. file no	
Date forwarded	5 Dec 90

TRANSMITTAL FORM

From ▶ Mining Recorder at: Whitehorse

To ▶ Regional Manager, Mineral Rights at Whitehorse, Y.T.

For action are

- [ ] NEW APPLICATION FOR PLACER LEASE TO PROSPECT — Name:
- [ ] RENEWAL APPLICATION PLACER LEASE TO PROSPECT — Name: — Lease no:
- [ ] AFFIDAVIT OF EXPENDITURE ON PLACER LEASE — Name: — Lease no:
- [ ] SECURITY DEPOSIT
- [ ] FINANCIAL ABILITY
- [ ] ASSIGNMENT OF PLACER LEASE NO. — From: — To:
- [ ] GROUPING APPLICATION UNDER SEC. 52(2) PLACER MINING ACT — Owner:
- [ ] DIAMOND DRILL LOGS — Claims: — Claim sheet no:
- [x] QUARTZ ASSESSMENT REPORT — Claims: WEDGE 5-10, 15, RAS 1-4, BIT 1-3, 5 M&C — Claim sheet no: 115I-03
  - Type of report: Trenching; Geology — Submitted by: Aurchem Expl.
  - Cls. work performed on: — $ req. for ren. application:

OFFICE OF THE REGIONAL MANAGER
DEC 05 1990
YUKON TERRITORY

Signature

092943

REPLY ACTION

Date returned:

for information only
Please # and return 1 copy of report.

Signature

802 37 (7-88)

AURCHEM

AURCHEM EXPLORATION LTD.
16 - 266 Rutherford Road South
Brampton, Ontario L6W 3X3
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FAX NO.: (403) 668-4070

NO. OF PAGES: 1

TO: DENNIS OUELLETTE
EXPLORATION AND GEOLOGICAL SERVICES DIVISION

FROM: MARK LANGDON

DATE: MAY 27, 1991

RE: ASSESSMENT REPORT INFORMATION

Dear Mr. Ouellette:

As per requested, I am sending the following information which was omitted from the 1990 Assessment Report on the Discovery Creek Claims (115I/3)

Mark Langdon
511 Hayward Crescent
Milton, Ontario
L9T 4P2

Phone: (416) 876-1936

- graduated from the University of Waterloo, Waterloo, Ontario, with a degree of Honours Bachelor Science - Earth Science Major
- have been working as an exploration geologist on a full-time basis since April, 1979 (12 years).
- Member of "Prospectors and Developers Association of Canada" and the "Society of American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc.".

If you require any further information, please feel free to call or FAX.

Yours truly,

AURCHEM EXPLORATION LTD.

Mark Langdon

Mark Langdon
Manager - Geological Projects
MSL:mi

DEXED.........
RECEIVED: May 27/91
E. Ilan

A MEMBER OF THE COSCH GROUP

1990 EXPLORATION PROGRAM

Report on trenching and geology carried out on Wedge 5, Wedge 6, Wedge 7, Wedge 8, Wedge 9, Wedge 10, Wedge 15, RAS 1, RAS 2, RAS 3, RAS 4, MSL, Bit 1, Bit 2, Bit 3, Bit 5

Claim Sheet 115I/3, 62°05'N/137°10'W

June 1, 1990 to September 30, 1990

AURCHEM EXPLORATION LTD.
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Mark Langdon
Manager-Geological Projects
November 1990

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List of Maps in Back Folder

1) Eliza Creek Zone Geology and Trench Location
2) Magnetometer Data - Eliza Creek Zone
3) Eliza Creek Claim Map
4) Property Claim Map

List of Claims and Tag Numbers

Ras 1	YA93138
Ras 2	YA93139
Ras 3	YA93140
Ras 4	YA93141
MSL	YA95099
Bit 1	YA97733
Bit 2	YA97734
Bit 3	YA97735
Bit 5	YA97737
Wedge 5	YA82171
Wedge 6	YA82172
Wedge 7	YA82173
Wedge 8	YA82174
Wedge 9	YA82175
Wedge 10	YA82176
Wedge 15	YA82181

Introduction

The claims and accompanying Leases have been explored by Aurchem Exploration Ltd. from 1985 to present.

The 1990 work program was centered on the Eliza Creek zone. Only very minor work has been conducted here in the past. Two preliminary trenches dug in 1989 in Eliza Creek displayed wide vein structures of generally low grade Au, Ag, Pb and Zn. These veins were shown to coincide with VLF, magnetometer and geochem anomalies with at least a 3,000 foot strike length probable. Other anomalies not trenched indicated a strong possibility of other parallel structures. The large tonnage potential of the Eliza Creek Zone dictated that the 1990 work program be carried out in this area.

At this time, the bulk of the field data gathered has not been compiled as yet and so will be unable to be assessed in this report. I will list the general work done, but this report will concentrate mainly on the geology, vein characteristics, etc.

In summary, the 1990 field program consisted of:

1) Trenching and sampling of three locations (veins) in the Willow Creek area. These were on sites of previous trenches where more work was deemed necessary.

2) Trenching and sampling of the H5 trench area with a new trench 150 feet on strike. A picket grid was also set up in this area with a magnetometer survey. One line of I.P. was done over the H5 vein.

3) A total of twelve trenches were dug in the Eliza Creek zone. Mapping and sampling of these zones followed. The trenches were dug with a combination of a D8K cat, a D8H cat and a 235 Excavator.

4) Detailed magnetometer data within the trenches was taken on 10 foot spaces to help interpret the geology and/or our magnetometer survey data.

5) The Joanne Claim posts were located (BYG claims) as to locate Aurchem's southern boundary in the Eliza Creek zone.

6) Grid line extensions were completed on the west side of the Eliza Creek grid to cover Aurchem's property (i.e. the west boundary to the Bull Claims (G. Dickson) and the south boundary to the Joanne Claim (BYG) have now been located). Total field magnetometer data was taken on 25 foot stations on these grid extensions to be added to our magnetometer survey base map done in 1989.

7) The base line of the Eliza Creek grid was extended to the north (i.e. Aurchem's property boundaries were located to facilitate this). Grid lines of 1200N to 1500N were established in this area. Total field magnetometer data was taken to establish on-strike location/continuation of the vein zones across and to the north of Discovery Creek.

8) An Iduced Potential (I.P.) survey was carried out on the Eliza Creek grid. Lines 1400 South to 1000 North were completed at A = 50 ft./N = 1-6. Every other line was done at A = 100 ft./N = 1-6. Four lines were done at A = 200 ft./N = 1-6. Line 1500 North was also done at A = 100 ft./N = 1-6.

9) A road was established to gain access to the top of the hill in the Eliza Creek zone.

10) Approximately 200 soil geochem samples were taken in the Eliza Creek zone to add to the data base.

11) Seven 45 gallon drums of vein material was taken from selected veins/trenches for future preliminary metallurgical testwork.

Property Location

The claims and accompanying leases are located in the valley of Discovery Creek, a tributary of Nansen Creek. Access is from Carmacks by going west on the Mount Nansen Road (70 km. west).

Property Claim Maps

Two claim maps are located in the back folder. One is a generalized claim map of the entire property. The second claim map is of the Eliza Creek zone. Claim and survey posts are much more accurately located on the Eliza Creek map where Aurchem's west and southern property boundaries are shown in better detail. This map shows that some claims have very little or no property associated with them;

LGCS 1	YA95014	-	likely no property but not confirmed
LGCS 3	YA95016	-	no property
BIT 4	YA97736	-	no property
Wedge 9	YA82175	-	no property
BIT 5	YA97737	-	definitely has some property

In producing this claim map, it was also found from locating steel posts of the surveyed leases, that our grid is also slightly off. The N330^{o} baseline is actually N328^{o} and the N60^{o} picket lines are actually N58^{o}. This assumes that the 1955 legal survey of the leases (from blueprints) used a correct north direction.

Geology and Trench Location

The geology map in the back folder displays the trench locations and the geology of the Eliza Creek zone.

General Geology

The oldest lithology on the property is the Yukon Group Metamorphics. They are Cambrian in age or older and consist of metamorphic equivalents of volcanics (flows, tuffs, pyroclastics), minor sediments and plutonic lithologies. Nearly all units seen, of gneisses and schists, are very siliceous and interbanded in relatively narrow bands (less than 50 ft). They all possess a good lineation (metamorphic) which was surprisingly consistent in direction in all trenches displaying the group. They contained the orientation of N310° to N340° (most commonly N330°) and usually dipped from 45° to 85° west. The strike is coincidental with the strike of both the epithermal veins and the related porphyry dyke group. The only variance seen was in the dip. The veins and dykes nearly always dipped between 70° to nearly vertical in a westerly direction. The metamorphic group usually followed an identical dip but in a few instances near the south end of the property, they dipped about 45° west, while the dykes/veins continued their steep westerly dip. Small veinlets could be seen running up the 45° west cleavage planes in these areas. In areas where the dip was 45° west a very intense argillic alteration of the Yukon Group could be found nearby or coincidental. The gneissic/schistose texture of the group, although parallel in strike and dip to the vein/porphyry dykes, was formed pre-epithermal/dyke emplacement. The adjacent diorite does not have this metamorphic lineation, so the metamorphism is pre-diorite in age (i.e. pre-Triassic/Jurassic). It suggests that the Northwest fault system hosting the epithermal event is very old and likely was the cause of the metamorphism in the Yukon Group during the Paleozoic Era. This likely coincides with early plate tectonics between the Yukon Crystalline Terrain (our area) with the the St. Elias Belt to the west. One puzzling feature of the Yukon Group in this similar strike direction is that some individual units can be traced for hundreds of feet on strike from trench to trench. This would suggest, along with what was seen in the trenches, an almost complete lack of deformation/folding of the lineation. This suggests a regional stress origin for the metamorphism but in an area of intruding plutons of diorite and granodiorite and volcanics, it seems rather strange that no deformation of the block occurred. One possible explanation is that this Yukon Group "Block" being very hard and siliceous is just a large "zenolith" partially attached to the diorite to the east and northeast was contained and uplifted by the Mount Nansen Volcanics. The diorite possibly protected the block from rotation while the volcanic flows lacked sufficient strength to deform this siliceous unit. This suggests that diorite and/or Mount Nansen Volcanics underlie a relatively small (shallow) block of the Yukon Group.

The argillic alteration locations of the Yukon Group (and possible change in dip to 45° west) are as previously stated, in close proximity to the Mount Nansen Volcanics contact. Trench samples show that these argillized metamorphic zones are not mineralized unless late epithermal mineralization intruded as stringers. Around porphyry dykes and/or veins, there does not seem to be argillized zones in the Yukon Group of any significant magnitude. Therefore, it seems unlikely that the large argillized Yukon Group zones are related to the epithermal episode or the porphyry dyke emplacement. It seems highly probable that the argillic alteration occurred during the intrusion of the Mount Nansen Volcanics (53 - 100 Million years ago). The argillic alteration has been overprinted on top of the regional gneissic/schistose alteration of the Paleozoic Era.

The above suggests that the Mount Nansen Volcanics underlie the Yukon Group in the southern portion of the property. The magnetometer data and the geology give rise to the possibility of a very thin layer of Yukon Group on top of the volcanics, possibly even a wedge which thickens to the northwest. The underlying contact would have a zone of argillic alteration of unknown thickness within the Yukon Group.

On the western side of the property, centered at about L200 South/800 West, is a large zone of very high magnetometer readings (note: see magnetometer map in back folder). The general Yukon Group lithologies does not differ greatly in this area compared to the east where the rest of the Yukon Group shows moderately high values. The reason for these higher values are the presence of veins of massive magnetite, possible pyrrhotite and minor pyrite. No gold or silver appears to be associated with the veins of magnetite. The vein exposed in a trench at Line 300 South/1000 West is about 15 feet wide with a central core of massive magnetite 3 - 4 feet wide and a gradational contact on either side. It has a strike and dip of N330^{o}/80^{o} west which is the same as the gneissic texture of the Yukon Group, the epithermal veins and the porphyry dykes. It would appear likely though that these magnetite beds were formed in the Paleozic Era or earlier and have no relationship to the epithermal mineralization. In this area, a brunton compass needle is deflected off as much as 30^{o} from true directions. This same deflection of variable amounts occurs right across the southern boundary of the property as you approach the upper ridge. Most of these areas are near the Mount Nansen Volcanics which suggests some highly magnetic beds in that group or other blocks of the Yukon Group buried within the flows.

The contact of the Yukon Group and the diorite was not well exposed. Deep overburden at the contact covers the relationship. It also appears likely that a post-epithermal collapse fault at this contact further complicates the picture. The best contact exposure is at Line 100 South/400 West where a 20 foot wide zone of overburden (mixture of blocks of vein and Yukon Group and argillic equivalents) separates chlorite rich diorite to the east and biotite-quartz schist to the west. No zenoliths of the Yukon Group have been seen in the diorite. There is a tendency of the biotite-quartz schist (with usual chloritic alteration) to be located in close proximity to the diorite contact. It is possible that this is the altered version of type A (Biotite-Quartz Gneiss) which has been remobilized with additional biotite and chlorite from the heat of the diorite intrusion. More data is required to speculate further on alteration at this contact. The fault at this location suggests that the diorite has been uplifted (or Yukon Group dropped) for at least 275 ft. in a vertical direction assuming no lateral fault displacement.

The Casino Granodiorite (75 - 125 Million Years) has intruded post-diorite and zenoliths of diorite can be found within. In the Eliza Creek Zone, the granodiorite is only found in a small area near Line 1100 North/900 East. This contact is also a fault contact at N110^{o} where the granodiorite on the north side has been uplifted. The granodiorite may come more into play on the north side of Discovery Creek when the grid is extended. It is also probable that the granodiorite is underlying the diorite which may possibly bring it into play with drill holes.

Faults and Their Relationship to Veins

The veins are definitely fault controlled. They parallel or sub-parallel two distinct fault trends at N330^{o} and N20^{o}. The dominant controller is the northwest faults at N310^{o} to N340^{o}. The Eliza Creek Zone appears to have five or six main veins of varying width that appear to be continuous on strike for at least 3000 ft. These follow the northwest trend sub-parallel to the main northwest fault.

Branching off these main veins are veins at N20^{o}. These N20^{o} veins are usually narrower and are most common on the hanging wall side of the N330^{o} veins. What these veins do on strike is not that obvious, but they appear to continue until they hit the next N330^{o} structure where they turn and parallel the original N330^{o} structure. This creates a number of smaller N330^{o} veins between the larger N330^{o} veins. The secondary veins do not appear to have long continuous strike lengths, but may show discontinuous pods and lenses. This creates a picture of a number of main N330^{o} veins with multiple smaller parallel veins that are all interconnected by veins at N20^{o}. This same picture appears to hold true for the prophyry dykes as well.

There are also a number of N40^{o} faults which pre-date the epithermal mineralization. No veins have yet beeen found in this fault system. The character and size of the veins are possibly effected by these faults by pre-mineralization movements of lithology or northwest fault displacements. Slight changes in strike of the northwest veins (from N310^{o} to N330^{o} to N340^{o}) appear to take place when crossing the N40^{o} faults. This set of faults (N40^{o}) are related and probably derived from the N20^{o} and N330^{o} faults. Where a N20^{o} and N330^{o} fault intersects, a fault at N40^{o} crosses through, creating a triple fault junction point. The N40^{o} fault continues on strike to another triple fault junction point. These triple junction points also appear to be the site of where the N330^{o} fault and the N20^{o} fault change in dominance of controlling the topography.

Also related to these triple junction points are post-mineralization faults at N110^{o}. This set of faults strongly suggest that they are uplift or collapse faults with little to no lateral movement. They were likely created in the wanning stages of the eipthermal system during the uplift and collapse from the heat source of the event. These faults create the most damage in chasing the veins on strike. They create left lateral displacements of the vein, but usually of minor magnitude (usually about 20 ft.). One such displacement was seen in a trench at Line 500 North/200 West. The diorite/Yukon Group contact is also a N110^{o} fault of much greater magnitude, which I suspect displaces the vein left-laterally for close to 100 ft. due to uplift on the diorite side.

On the smaller N110^{o} faults, the veins just turn from N330^{o} to N110^{o} and back to N330^{o} within a strike distance that is approximately equal to their lateral displacement. The vein is continuous right through the fault zone. This suggests a sheared zone, rather than a "marked" fault line. This may also hold true at the diorite/Yukon Group contact fault where the 100 foot displacement may mean we have a 100 foot wide zone where the vein trends closer to N110^{o} before resuming a N330^{o} strike.

As stated earlier, these N110^{o} faults appear related or controlled by the triple junction points also. They also appear to cross other faults on the triple fault junction point, making these points a zone where four faults intersect.

In the Willow Creek Zone, within the granodiorite host, these N110^{o} are very common and likely account for our great difficulty in chasing veins on strike and connecting veins found in trenches separated by 200 feet or more. In the Eliza Creek Zone, these faults are much less dominant and in fact seem almost absent, except for the two mentioned above. This may be a lithology characteristic factor of diorite versus granodiorite, just location or a variety of other factors. Fault related problems that were encountered in the granodiorite of the Willow Creek Zone seem to be only of minimal consequence in the Eliza Creek Area.

The dips on all the faults previously discussed appear to be steep to vertical.

A schematic diagram on the next page (Figure 1) illustrates the general faults and their relationship previously discussed.

Lithologies and Veins

As stated earlier, the veins are fault/structurally controlled. The lithology of the host rock does not appear to be a strong controlling factor. We had stayed away from the Eliza Creek Zone because of the Yukon Group and Diorite lithologies in favour of the Willow Creek Zone with a more favourable granodiorite host rock. Early work at Mount Nansen Mines had shown that veins narrowed or pinched-out considerably when entering the diorite or Yukon Group from the granodiorite or porphyry dykes. The diorite now appears to be a very favourable host and the Yukon Group a weak host but structurally important.

The nature of the fault in any lithology appears to be the controlling factor. Alteration halos around a vein were quite extensive in the granodiorite (up to 75 ft.), but are minimal in the diorite (1 - 2 ft.) and almost non-existent in the Yukon Group (.1 - 1 ft.). The diorite is a fairly siliceous and hard lithology while the Yukon Group is dominantly quartz and an extremely tough resilient lithology. The trend of the gneissic/schistose texture may strongly affect the nature of the fault and thus the vein emplacement. Veins within the Yukon Group definitely tend to be narrower in width than in the diorite. The strong magnetometer anomalies (lows) seen in the diorite over veins show up in the Yukon Group, but are much narrower and of less strength. Possibly of geological significance is locations where the veins are entering or leaving the Yukon Group. Fluid flow within narrow zones in the Yukon Group may be restricted causing "blow-outs" of much larger veins at contacts of other lithologies. This gives rise to the possibility of the Yukon Group contact acting as trap for veins. Earlier it was suggested that the Yukon Group might be a wedge overlying volcanics and/or diorite, which thins to the south to the volcanic contact. This possibly may form a siliceous cap over veins forming a trap for mineralized solutions coming up through the lithologies below. The vein in the area of 400 - 500 West from Lines 0 - 1000 South shows a very strong I.P. signature from 500 South to 1200 South. From 500 South to 200 North, it disappears where the Yukon Group is quite thick. At 200^{o}N, it likely leaves the Yukon Group and enters diorite (or possibly volcanics) where the I.P. anomaly gains strength once again. This location also shows a very strong magnetometer anomaly and good soil geochem response.

If the underlying contact also has a zone of argillized Yukon Group, this may add to the potential of the contact. Figure 2 shows a skematic diagram of

FIGURE 1

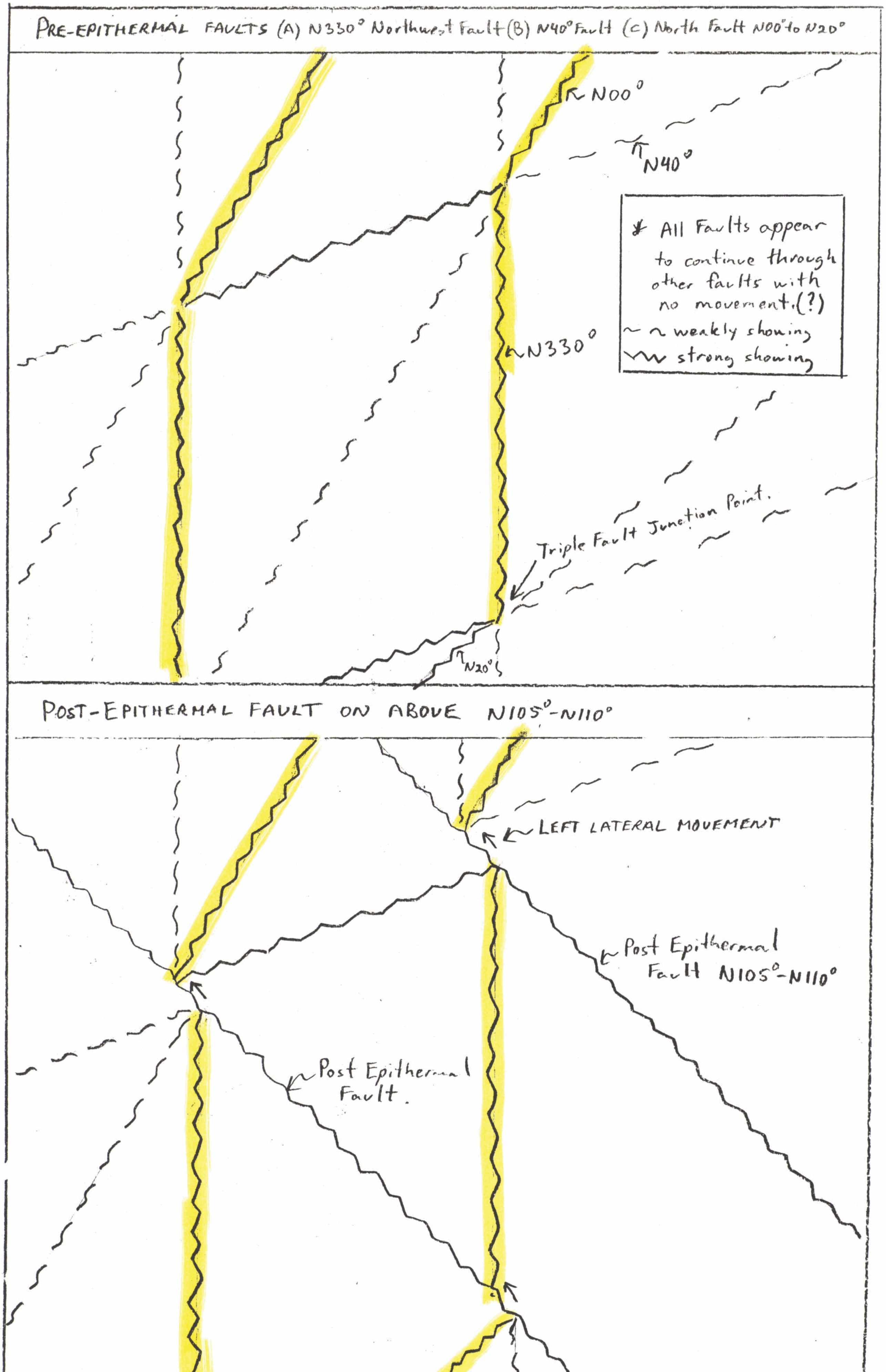
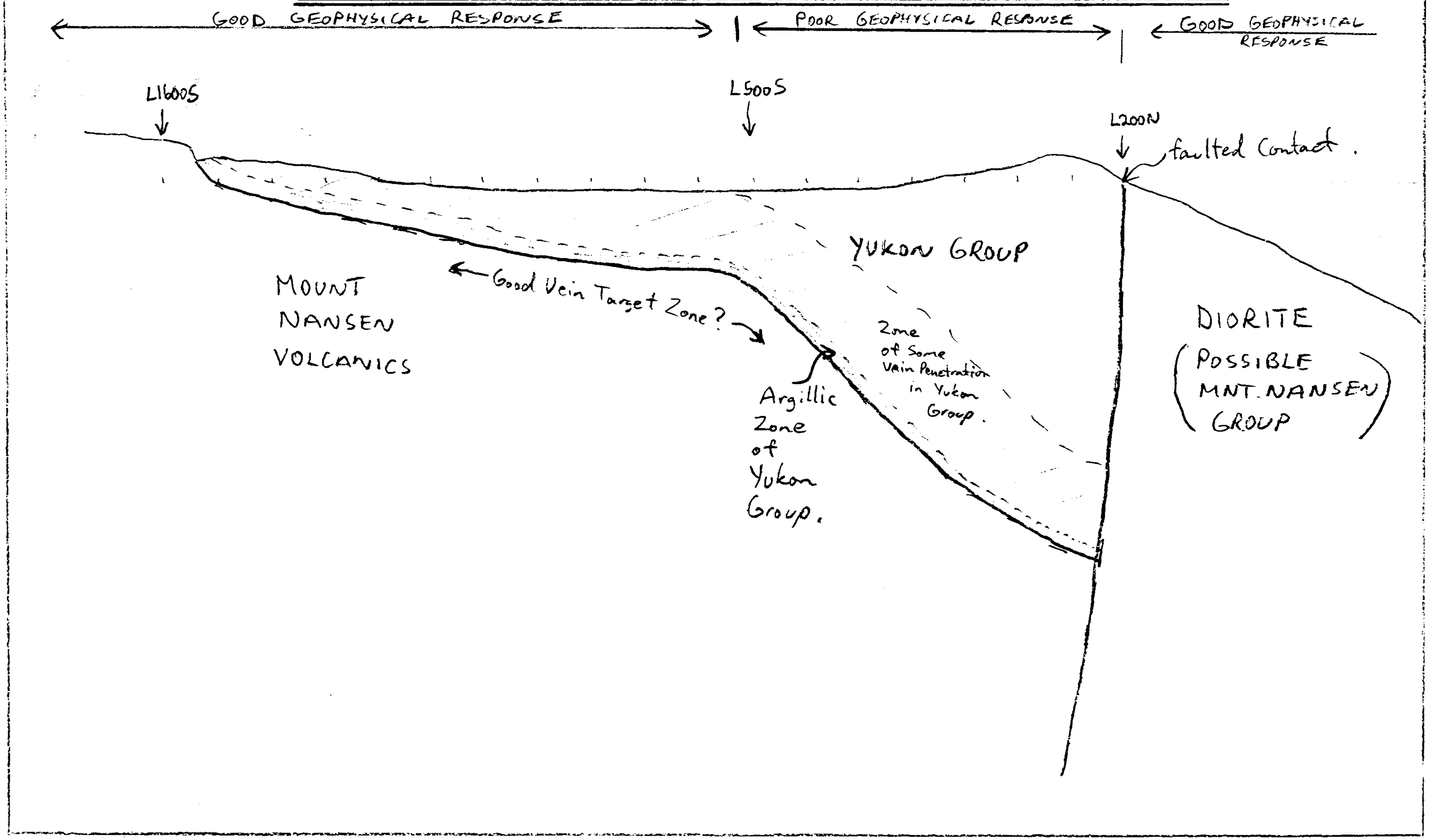

PRE-EPITHERMAL FAULTS (A) N330° Northwest Fault (B) N40° Fault (C) North Fault N00° to N20°
N00°
N40°
* All Faults appear to continue through other faults with no movement.(?)
~ weakly showing
strong showing
N330°
Triple Fault Junction Point.
N20°
POST-EPITHERMAL FAULT ON ABOVE N105°-N110°
LEFT LATERAL MOVEMENT
Post Epithermal Fault N105°-N110°
Post Epithermal Fault.

FIGURE 2

CROSS-SECTION AT N330° DOWN 400-500 WEST



this possibility. The vein shown in the trenches also agrees with this possibility. At Line 1000 and 800 South, the sulphide mineralization was strong and increased with the depth of the trench. It was moderate at Line 500 South. At Line 0, the structure was there, but almost no sulphide veins were seen.

Veins - Types and Trenching

There were two distinct types of vein found in the trenches:

1) Veins within the host lithology usually with an altered porphyry dyke close by. The veins are parallel or sub-parallel to the porphyry dykes. A vein on the edge of a dyke usually ran gold/silver grades, but porphyry dykes with sulphide stringers within assayed poor to nil (geochemically anomalous). These porphyry dykes were variably altered and bleached (phyllic/carbonate alteration common).

2) A highly silicified porphyry dyke (secondary silicification) with sulphide stringers and veins within usually in the centre of the dyke.

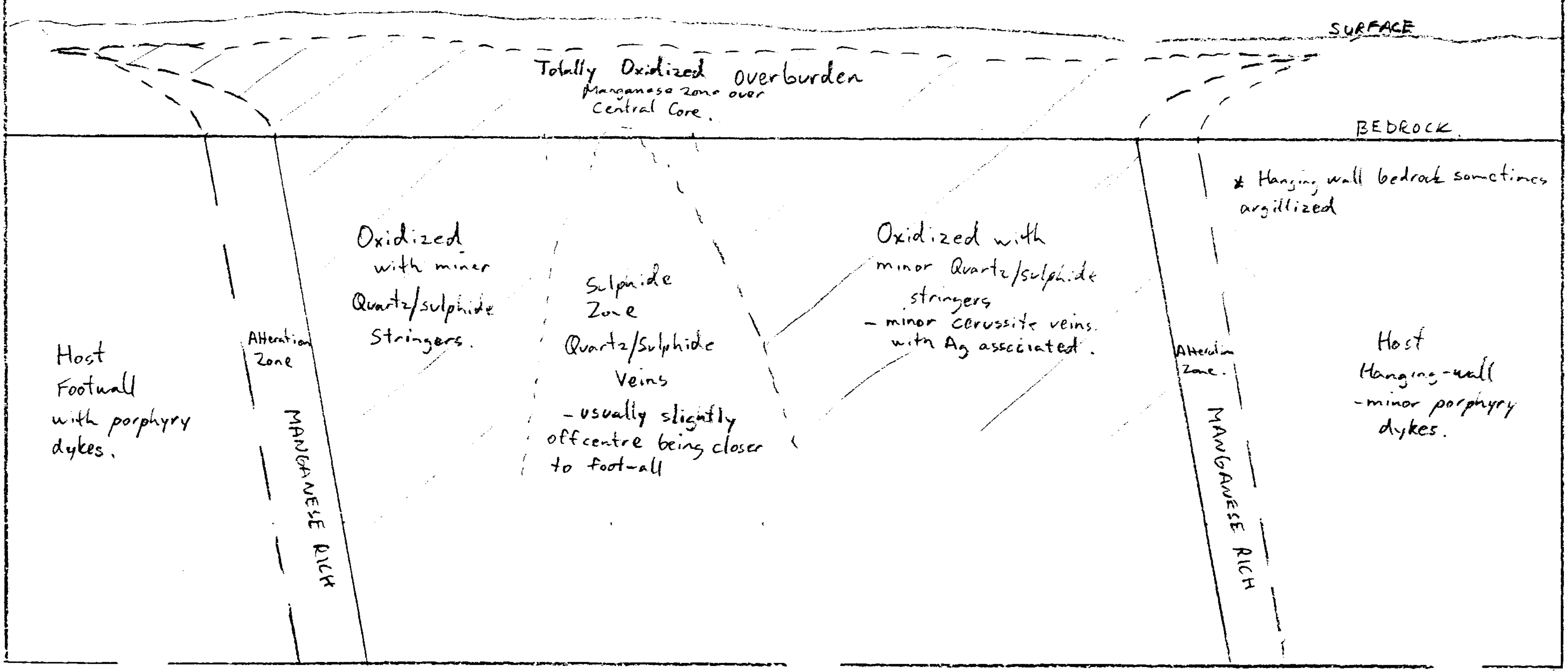
Only one vein of type 2 was found and is located at 400 - 500 West within the Yukon Group area. All other veins were of type 1. Both types show strong hydrothermal brecciation. Type 2 was sulphide rich with practically no oxidation. Type 1 was oxidized in variable amounts from partially to totally. The oxidation appears to be in part supergene or surface oxidation mixed with hypogene. In all cases, even in type 2 veins, the initial exposure of the veins in the trenches was seen as totally oxidized material. In type 2, the oxidized layer was mostly within the overburden. When the silicified porphyry dyke was encountered, the mineralization became sulphides with little or no oxidation.

Type 1 veins generally showed a gradual increase in the sulphide content with depth in trenches. The sulphides would show in a central core of the vein and grow in width with the depth the trench was dug. Usually the quartz content also increased with the sulphide, which likely protected the sulphides from surface oxidation. Worth mentioning is that in most cases, the presence of the sulphides coincides very well with an increased assay value. This may suggest that the supergene solutions causing the oxidation may also be leaching the economic minerals from the vein. Optimistically, this would suggest that wider widths of higher grade material may be found in drill holes where surface oxidation/leaching is less severe. This would make chargeability targets from the I.P. data quite attractive. The assay data also possibly supports this leaching idea with the profiles shown over the vein width. This is shown in Figure 3 on the next page.

Zinc shows low values within the core with high values surrounding the sulphide vein material. The gold, silver, lead, arsenic and antimony display the opposite trend to zinc. Contrary to this, is that when in the central sulphide core, an erratic high zinc value may occur with very high values of the other elements. This same pattern was seen in veins in the Willow Creek region. There some multi-element analysis shows that similar trends of other elements and oxides follow zinc (V, Ce, Mo, Ba, Cu, Bi, K_2O, Al_2O_3 and TiO_2). Those showing a high in the central core are CaO, Sr and Te.

FIGURE 3 - ASSAY VEIN PROFILE

Host	Alteration Zone	Oxidized Vein	Sulphide Core Vein	Oxidized Vein	Alteration Zone	Host
No significant Assays. No argillization. Geochemically anomalous in porphyry dykes.	High Zn. Low Pb, Ag, Au, Sb, As. Sometimes Moderate Au	High Zn. Low Pb, Ag, Au, Sb, As. Some erratic high values from stringer mineralization for Au, Ag, As, Pb, Sb.	High Au, Pb, Ag, Sb, As. Low Zn. Minor high Zn where very high Au values.	High Zn. Low Au, Ag, Pb, As, Sb. Rare high values of Au, Ag, Pb, As, Sb from Stringer veins. Some Very high Pb, Ag from cerussite veins	No Significant Assays. Anomalous. Sometimes Moderate Zn.	No significant Assays - geochemically anomalous in argillized zones.



The exception to above where no sulphide core was seen was in veins of Line 800 North/Base Line to 100 East. This trench was dug to 43 feet in depth, but saw no great change in vein character of being totally oxidized. This vein displays oxidized mud with abundant manganese enriched veins and zones. I would assume greater depth surface oxidation in this vein zone. This vein shows excellent potential for high grades because:

1) In other veins, the central sulphide-quartz vein core shows up near surface as a manganese enriched zone. The manganese disappears as the core starts to show accompanied by much higher grades in Au, Ag, Pb, As, and Sb. This vein shows the greatest abundance of manganese of all veins seen.

2) When minor vuggy quartz with manganese was found above the quartz-sulphide core, the core usually produced very high assays. Vuggy quartz-manganese veins are showing up in this vein, but the vuggy quartz clasts themselves are producing low assay values so far.

3) The I.P. data shows a very strong chargeability target at depth under this vein (sulphide zone).

Veins and Assays - General

Although the assay data is not all in at this time, so has not been included in this report, some generalizations can be stated;

1) Assay values within veins are very erratic, especially for Au. Samples were taken across a straight line through a vein as continuous channel samples of one or two feet in length each. Stringers within the vein pinch and swell. A one inch wide stringer on the sample line might be seen to swell up to one foot in width for example 3 feet off the line or on the face (wall) of the trench. Hopefully, by staying on the line for samples, this will average out in the end. The problem it poses through is, for example, if two veins were sampled and one gave 20 feet of .050 oz/ton Au and the other .100 oz/ton Au, I do not believe that you can say the 20 ft. of .100 oz/ton Au vein is a better vein. If the sample line was moved 20 feet along strike on both veins, the assay values may be reversed. Also, the trench depth seems to play a very important role in some cases as to the assays received.

2) Generally speaking, the deeper the trench was dug, after initially seeing the vein, the better the assay results would get. The amount of increase likely varies with each individual case or vein. Some veins shown on the geology map were really just oxidized mud still within the overburden layer and low assays will likely reflect this. Therefore, the indicated width and assay values will not be indicative of what is really there.

3) Very high grade in lead/ silver veins as cerussite are found as stringers vein zones within the diorite host, but none were seen where the Yukon Group was the host (Note: these same high grade cerussite veins are found in the granodiorite in the Willow Creek Area).

4) Veins within the diorite show a strong tendency to "mushroom" at surface. Where multiple parallel veins exist, the "mushrooming" of the individual veins connect the veins near surface. This creates very wide false widths of veins

in the initial stages of trenching. For example, the veins just west of the base line on Line 100 South showed about 125 feet of continuous oxidized vein. When the trench was dug deeper (below the mushroom effect), this showed up as four distinct veins with host rock in between. The vein dips on the trench face (wall) are really the only way to get an accurate picture of when you are below this mushroom effect.

5) Veins within the Yukon Group show a distinct difference from the "mushroom" effect within the diorite. Within the overburden of the Yukon Group, about 50% of the time no vein halo was seen at all or just minor red rusty staining. The other 50% showed a "mushroomed" oxidized mud/vein zone, but this would tend to disappear or pinch out with depth as you approached the true vein in the bedrock. The vein within the bedrock/overburden interface would be narrow and get wider as the trench was deepened. This could possibly be described as an "hourglass" type picture. Even once in the bedrock the width and the visual strength of the vein continues to enlarge the deeper the trench was dug. I believe that if all the vein exposures within the Yukon Group were deepened the vein widths and the grades of sampling would improve. For example, the vein at Line 300 South/850 West was 3 feet wide at a depth of 5 feet. The final digging of the trench before sampling went another 3 feet deeper to 8 feet. The vein widened from 3 feet to 15 feet. The same pattern showed even for the magnetite vein just west of here.

The depths to bedrock at veins was deeper than in areas between veins. This created trenching problems of water build up in trenches on vein zones. To create drainage, areas of no vein bedrock had to be "ripped" out, which is very difficult due to its very hard and siliceous nature. Therefore, trenching on veins within the Yukon Group is very difficult to get a good exposure of what may be representative of the true vein.

6) The type 2 vein discussed earlier was unique in that it was contained within a silicified porphyry dyke. A highly chloritized footwall within the porphyry was seen that remained very siliceous. The sulphide stringers in the center of the porphyry increased in abundance, strength and width as the porphyry dyke was "ripped" down in the trench. Eventually, a 6 inch vuggy quartz core appeared (i.e. in all three trenches on this vein). The one trench on Line 1000 South was deepened a further 2 feet from the appearance of the vuggy quartz. This produced an inverted "v" shape to the vuggy quartz vein where in the bottom six inches a vuggy quartz/massive coarse pyrite vein showed up. This was identical in appearance to the 11 South vein of Willow Creek where high silver values were encountered with associated tetrahedrite. This showing, accompanied with a very strong I.P. response makes this vein a definite drill target. The different nature of the vein and being within the Yukon Group makes for only a weak to no magnetometer anomaly over this vein.

7) In all veins, hydrothermal brecciation was seen in variable amounts with multiple stages. (i.e. the massive magnetite vein shows no hydrothermal brecciation and is not epithermal in origin).

Discussion and Recommendations

As our data base is not yet all in and compilation and interpretation is still in process, it is difficult at this point to recommend what future work should be done, except in a general way.

When compiled, our work will likely show at least three main veins that are continuous through the property for at least 3000 feet each. A number of smaller or discontinuous veins run parallel. The I.P. data should show a number of depth targets for drill follow-up. A number of possible trenching locations will also be produced and some deepening on selected locations of existing trenches. The north end grid extension with magnetometer data and one line of I.P. data (Line 1500 North) clearly indicates that at least one (maybe two or three) of our main vein targets continue(s) to the north across Discovery Creek. Aurchem's claims/leases in that area enable this vein(s) to have another 1500 feet of strike length within the property. This is almost a 50% increase in possible strike length and so is obviously very important to investigate. Therefore, a grid extension to the north to cover this area accompanied by a total field magnetometer survey should be a fairly high priority and a minimum done in this area. Soil geochem lines over some parts of this extension are also warranted.

Due to deep overburden and steep relief in places, a number of attractive targets are not feasible to trench. These should be investigated in conjunction with our geophysical data with some drill holes.

The drilling of I.P. targets will give us the data required to evaluate the I.P. targets and their various types of targets to what is reality. Assuming a positive correlation with good results, the north grid extension should then be surveyed with I.P. for trench and drill targets in that area.

In the north grid extension up to L1500 North, a deep overburden cover is probable making trenching unrealistic. If the proposed grid extension to about Line 3000 North is done with a magnetometer survey, a preliminary trench location may possibly be shown higher up the valley where the overburden may thin out.

In summary, at present, I would recommend:

1) Northern grid extension with magnetometer and geochem surveys.

2) A reverse-circulation drill program to follow up on information from trenches, I.P. targets, etc. in conjunction with other data.

3) A relatively small trenching program on additional targets while the heavy equipment can also be used to form drill pads and make drill moves.

List of Expenditures

A) Personnel Expenditures

Mark Langdon	Manager - Geological Projects 511 Hayward Cres. Milton, Ontario	
	Fieldwork; survervision and implementation of trenching, mapping and sampling, geophysical and geochemical surveys	
	88 days at $200/day	$ 17,600
Rick Mortimer	Geological Assistant General Delivery Carmacks, Yukon	
	Field Work: assistant in all aspects of field program	
	45 days at $125/day	$ 5,625
Michael Hawkins	Geological Assistant General Delivery Carmacks, Yukon	
	Field Work: assistant in all aspects of field program	
	28 days at $125/day	$ 3,500
Secretarial Office Costs	$1,000	$ 1,000
Total Personnel Expenditures		$ 27,725

B) Rental Costs

1 Suburban 4 x 4 truck	$ 2,500
1 MP-2 Magnetometer Rental	$ 864
Total Rental Costs	$ 3,364

C) Miscellaneous Field Expenses

Hotels, meals, supplies, fuel, etc.	$ 10,000

D) Costs of Flights to Yukon

Cost of all flights	$ 4,000

E) Trenching Costs

Colt Enterprises - Carmacks, Yukon	$250,000
Kando Ent. - Carmacks, Yukon	$ 17,500
Total Trenching Costs	$267,500

Summary of Expenditures

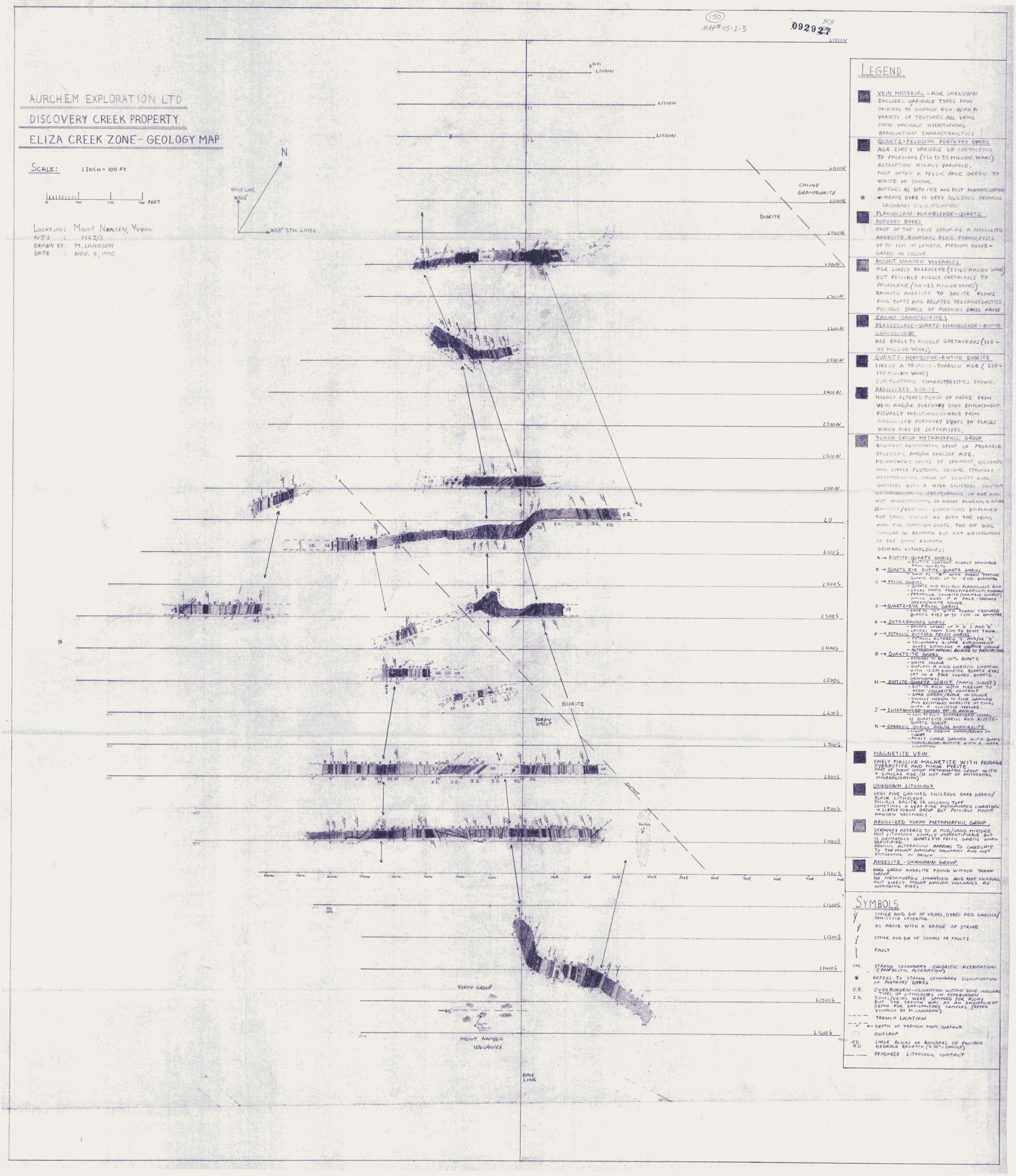
A)	Personnel Expenditures	$ 27,725
B)	Rental Costs	$ 3,364
C)	Miscellaneous Field Expenses	$ 10,000
D)	Costs of Flights to Yukon	$ 4,000
E)	Trenching Costs	$267,500
	Grand Total	$312,589

For all expenditures, receipts are available on request. No expenses for other work done but not contained in this report were put on the List of Expenditures.

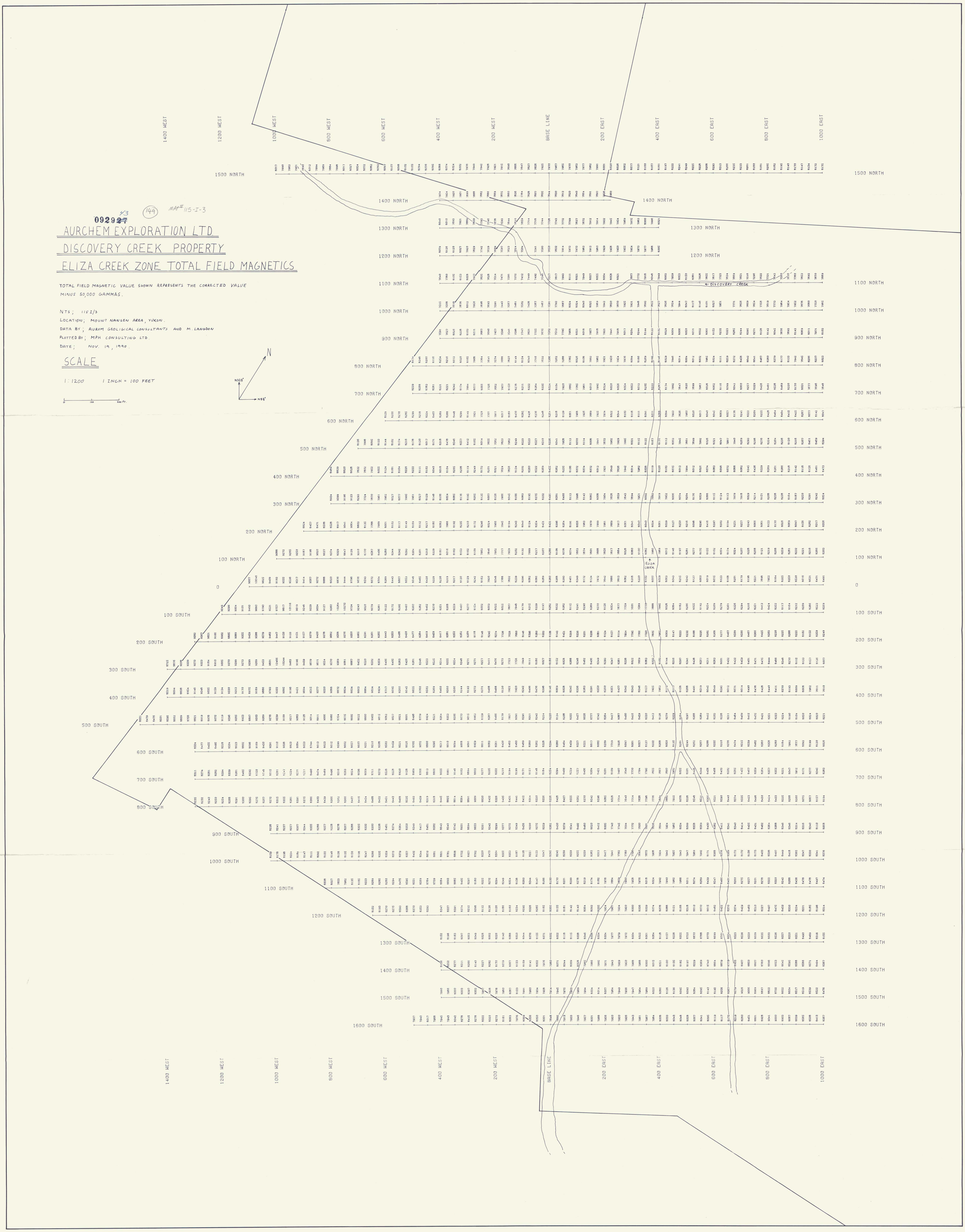
AURCHEM EXPLORATION LTD.

Mark Langdon

Mark Langdon
Manager - Geological Projects
MSL:mi



150
MAP# 115-I-3
092927
43
AURCHEM EXPLORATION LTD
DISCOVERY CREEK PROPERTY
ELIZA CREEK ZONE - GEOLOGY MAP
SCALE: 1 INCH = 100 Ft.
0 100 200 300 FEET
LOCATION: Mount Nansen, Yukon
NTS : 115I/3
DRAWN BY: M. LANGDON
DATE : NOV. 8, 1990
N
BASE LINE N328°
N58° STN. LINES
L1500N
L1400N
L1300N
L1200N
L1100N
L1000N
L900N
L800N
L700N
L600N
L500N
L400N
L300N
L200N
L100N
L0
L100S
L200S
L300S
L400S
L500S
L600S
L700S
L800S
L900S
L1000S
L1100S
L1200S
L1300S
L1400S
L1500S
L1600S
CASINO GRANODIORITE
DIORITE
YUKON GROUP
MOUNT NANSEN VOLCANICS
BASE LINE
LEGEND
VEIN MATERIAL - AGE UNKNOWN
INCLUDES VARIABLE TYPES FROM OXIDIZED TO SULPHIDE RICH WITH A VARIETY OF TEXTURES. ALL VEINS SHOW VARIABLE HYDROTHERMAL BRECCIATION CHARACTERISTICS.
QUARTZ-FELDSPAR PORPHYRY DYKES
AGE LIKEY VARIABLE OF CRETACEOUS TO PALEOCENE (136 TO 53 MILLION YEARS)
ALTERATION HIGHLY VARIABLE.
MOST OFTEN A FELSIC PALE GREEN TO WHITE IN COLOUR.
APPEARS AS BOTH PRE AND POST MINERALIZATION.
* ← MEANS DYKE IS VERY SILICEOUS. PROBABLE SECONDARY SILICIFICATION.
PLAGIOCLASE-HORNBLENDE-QUARTZ POPHYRY DYKES
PART OF THE ABOVE GROUP AS A PORPHYRITIC ANDESITE. EUHEDRAL PLAG. PHENOCRYSTS UP TO 1CM IN LENGTH. MEDIUM OLIVE-GREEN IN COLOUR.
MOUNT NANSEN VOLCANICS
AGE LIKELY PALEOCENE (53-65 MILLION YEARS) BUT POSSIBLY MIDDLE CRETACEOUS TO PALEOCENE (100-53 MILLION YEARS)
BASALTIC ANDESITE TO DACITE FLOWS AND TUFFS AND RELATED VOLCANOCLASTICS.
POSSIBLE SOURCE OF PORPHYRY DYKES ABOVE
CASINO GRANODIORITE;
PLAGIOCLASE-QUARTZ-HORNBLENDE-BIOTITE GRANODIORITE
AGE EARLY TO MIDDLE CRETACEOUS (125-75 MILLION YEARS)
QUARTZ-HORNBLENE-BIOTITE DIORITE
LIKELY A TRIASSIC-JURASSIC AGE. (225-175 MILLION YEARS)
SUB-PLUTONIC CHARACTERISTICS SHOWN.
ARGILLIZED DIORITE
HIGHLY ALTERED PHASE OF ABOVE FROM VEIN AND/OR PORPHYRY DYKE EMPLACEMENT. VISUALLY INDISTINGUISHABLE FROM ARGILLIZED POPPHYRY DYKES IN PLACES WHICH MAY BE INTERMIXED.
YUKON GROUP METAMORPHIC GROUP
BASEMENT METAMORPHIC GROUP OF PROBABLE PALEOZOIC AND/OR EARLIER AGE.
METAMORPHIC UNITS OF SEDIMENT, VOLCANIC AND LIKELY PLUTONIC ORIGIN. STRONGLY METAMORPHOSED GROUP OF SCHISTS AND GNEISSES WITH A HIGH SILICEOUS CONTENT.
METAMORPHISM IS PRE-JURASSIC IN AGE AND NOT HYDROTHERMAL OF ABOVE MINERALIZATION.
SCHISTOSE/GNEISSIC LINEATIONS DISPLAYED THE SAME STRIKE AS BOTH THE VEINS AND THE PORPHYRY DYKES. THE DIP WAS SIMILAR IN BEARING BUT NOT NECCESSARILY AT THE SAME AZIMUTH.
GENERAL LITHOLOGIES:
A → BIOTITE-QUARTZ GNEISS
- BIOTITE CONTENT HIGHLY VARIABLE FROM 20-80%
B → QUARTZ EYE BIOTITE-QUARTZ GNEISS
- SAME AS "A" WITH AUGEN TEXTURE QUARTZ EYES UP TO .5 CM DIAMETER
C → FELSIC GNEISS
- QUARTZ AND POSSIBLY PLAGIOCLASE RICH
- LACKS MAFIC FERROMAGNESIUM MINERALS
- PERVASIVE CHLORITE (VARIABLE CONTENT) WHICH GIVES IT A PALE-CREAMY GREEN/WHITE COLOUR.
D → QUARTZ-EYE FELSIC GNEISS
- SAME AS "C" WITH AUGEN TEXTURED QUARTZ EYES UP TO 1 CM. IN DIAMETER.
E → INTERBANDED GNEISS
- BANDED LAYERS OF "A" "B" "C" AND "D"
- LAYERS FROM 3CM TO 70CM THICK.
F → POTASSIC ALTERED FELSIC GNEISS
- POTASSIC ALTERED "C" AND/OR "D".
- SECONDARY K-SPAR ENRICHMENT GIVES LITHOLOGY A RED/PINK COLOUR
- ALTERATION APPEARS RELATED TO PORPHYRY DYKES
G → QUARTZITE GNEISS
- APPEARS TO BE 100% QUARTZ
- WHITE COLOUR
- DISPLAYS A FINE GNEISSIC LINEATION WITH .2 CM DIAMETER QUARTZ EYES SET IN A FINE SUGARY QUARTZ GROUNDMASS
H → BIOTITE-QUARTZ SCHIST (MAFIC SCHIST)
- BIOTITE RICH WITH MEDIUM TO HIGH CHLORITE CONTENT
- DARK GREEN/BLACK IN COLOUR
- USUALLY MEDIUM TO FINE GRAINED AND RESEMBLES ANDESITE AT TIMES WITH A SCHISTOSE TEXTURE.
J → INTERBANDED LAYERS OF G AND H
- 2CM TO 50CM INTERBANDED LAYERS OF QUARTZITE GNEISS AND BIOTITE-QUARTZ SCHIST.
K → GABBROIC GNEISS AND/OR AMPHIBOLITE
- LIGHT TO MEDIUM GREEN/BROWN IN COLOUR
- FAIRLY COARSE GRAINED WITH QUARTZ-HORNBLENDE-BIOTITE WITH A WEAK LINEATION
MAGNETITE VEIN
FAIRLY MASSIVE MAGNETITE WITH PROBABLE PYRRHOTITE AND MINOR PYRITE.
PART OF YUKON GROUP METAMORPHIC GROUP WITH A SIMILAR AGE. (IE. NOT PART OF EPITHERMAL MINERALIZATION)
UNKNOWN LITHOLOGY
VERY FINE GRAINED SILICEOUS DARK GREEN/BLACK LITHOLOGY.
POSSIBLY DACITE OR VOLCANIC TUFF
SOMETIMES A VERY FINE METAMORPHIC LINEATION → LIKELY YUKON GROUP BUT POSSIBLY MOUNT NANSEN VOLCANICS.
ARGILLIZED YUKON METAMORPHIC GROUP
STRONGLY ALTERED TO A MUD/SAND MIXTURE HOST LITHOLOGY USUALLY UNIDENTIFIABLE BUT IS GENERALLY QUARTZ EYE FELSIC GNEISS WHEN IDENTIFIED.
ARGILLIC ALTERATION APPEARS TO CORRELATE TO THE MOUNT NANSEN VOLCANICS AND NOT EPITHERMAL IN ORIGIN.
ANDESITE - UNKNOWN GROUP
DARK GREEN ANDESITE FOUND WITHIN YUKON GROUP.
NO METAMORPHIC LINEATION AND NOT SILICEOUS. MOST LIKELY MOUNT NANSEN VOLCANICS AS INTRUDING DYKES.
SYMBOLS
STRIKE AND DIP OF VEINS, DYKES AND GNEISSIC/SCHISTOSE LAYERING
AS ABOVE WITH A RANGE OF STRIKE
STRIKE AND DIP OF SHEARS OR FAULTS
FAULT
CHL. STRONG SECONDARY CHLORITIC ALTERATION (PROPYLITIC ALTERATION)
* REFERS TO STRONG SECONDARY SILICIFICATION OF PORPHYRY DYKES
O.B. OVERBURDEN - COLOURATION WITHIN ZONE INDICATES TYPES OF LITHOLOGIES IN OVERBURDEN.
I.D. ZONES/VEINS WERE SAMPLED FOR ASSAY BUT THE TRENCH WAS AT AN INSUFFICIENT DEPTH FOR SATISFACTORY SAMPLES. (RATED VISUALLY BY M. LANGDON)
TRENCH LOCATION
10' ← DEPTH OF TRENCH FROM SURFACE
OUTCROP
LARGE BLOCKS OR BOULDERS OF POSSIBLE BEDROCK BENEATH (≥ 50% CHANCE)
PROBABLE LITHOLOGIC CONTACT



092943
149
MAP# 115-I-3
AURCHEM EXPLORATION LTD.
DISCOVERY CREEK PROPERTY
ELIZA CREEK ZONE TOTAL FIELD MAGNETICS
TOTAL FIELD MAGNETIC VALUE SHOWN REPRESENTS THE CORRECTED VALUE MINUS 50,000 GAMMAS.
NTS; 115 I/3
LOCATION; MOUNT NANSEN AREA, YUKON.
DATA BY; AURUM GEOLOGICAL CONSULTANTS AND M. LANGDON
PLOTTED BY; MPH CONSULTING LTD.
DATE; NOV. 19, 1990.
SCALE
1:1200 1 INCH = 100 FEET
0 100 200 Ft.
N
N328°
N58°
1400 WEST
1200 WEST
1000 WEST
800 WEST
600 WEST
400 WEST
200 WEST
BASE LINE
200 EAST
400 EAST
600 EAST
800 EAST
1000 EAST
1500 NORTH
1400 NORTH
1300 NORTH
1200 NORTH
1100 NORTH
1000 NORTH
900 NORTH
800 NORTH
700 NORTH
600 NORTH
500 NORTH
400 NORTH
300 NORTH
200 NORTH
100 NORTH
0
100 SOUTH
200 SOUTH
300 SOUTH
400 SOUTH
500 SOUTH
600 SOUTH
700 SOUTH
800 SOUTH
900 SOUTH
1000 SOUTH
1100 SOUTH
1200 SOUTH
1300 SOUTH
1400 SOUTH
1500 SOUTH
1600 SOUTH
← DISCOVERY CREEK
ELIZA CREEK


092927 43 (152) 115-I-3
AURCHEM EXPLORATION LTD.
DISCOVERY CREEK PROJECT
ELIZA CREEK ZONE CLAIM MAP
Scale: 1 inch = 100 Ft. 1:1200
N.T.S. 115 I/3, Mount Nansen Area, Yukon.
KEY:
Iron Post of Legal Survey for Leases.
Claim Post (Wooden)
Claim or Lease Boundary
Claim or Lease Boundary within a pre-existing claim or lease.
Boundary of Claims/Leases of Aurchem Expl. Ltd.
DRAWN BY M. LANGDON, OCT. 5, 1990.
BULL 3
BULL 4
MYRTLE
BULL 5
RICCO
BULL 6
BULL 7
LUCKY STAR
BULL 8
COURTLAND
DISCOVERY CREEK
MACK
WEDGE 10
GRID BASE LINE
ELIZA CREEK
WEDGE 15
RAS 2
RAS 1
BULL 9
SUNSET
BIT 5
JOANNE 6
RAS 4
HAZEL ANNE
JOANNE 4

092927 43 (151)
MAP# 115-I-3

KEY

— — —	Claim and Lease Boundaries
———	Outer Boundary of Aurchem claims
■	Stakes Located by Aurchem
□	Stakes not yet located by Aurchem

Locations marked by ground distance, not horizontal distance.

Scale

0 200 400 600
FEET
1 INCH = 200 FEET

AURCHEM EXPL. LTD.

LEASE AND CLAIM BOUNDARIES

NTS. 115 I/3	REGION Mnt. Nansen
PROV. YUKON	DATE June 3, 1988
DATA BY R. Schneider	DRAWN BY R. Schneider & K. Ross