



REPORT ON
GEOLOGICAL MAPPING
AND SOIL TESTING SURVEY
JUNE 16, 1981 TO AUGUST 16, 1981



TARTZHART 25 AND 27-38 CLAIMS
TESLIN JOINT VENTURE
DAWSON MINING DISTRICT, Y.T.
CLAIM SHEET 116 C/7

LATITUDE 64 26'N

LONGITUDE 140 48'W

091401

This report has been examined by
the Geological Survey of Canada
under Section 33, Act on Quartz
Mining for a fee of \$6,500 as
represented on the bill for the amount
of \$ 6,500

R. Watson
Regional Director, Exploration and
Geological Services for Commissioner
of Yukon Territory.

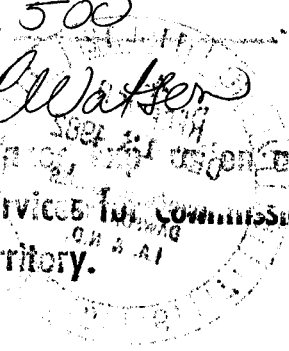


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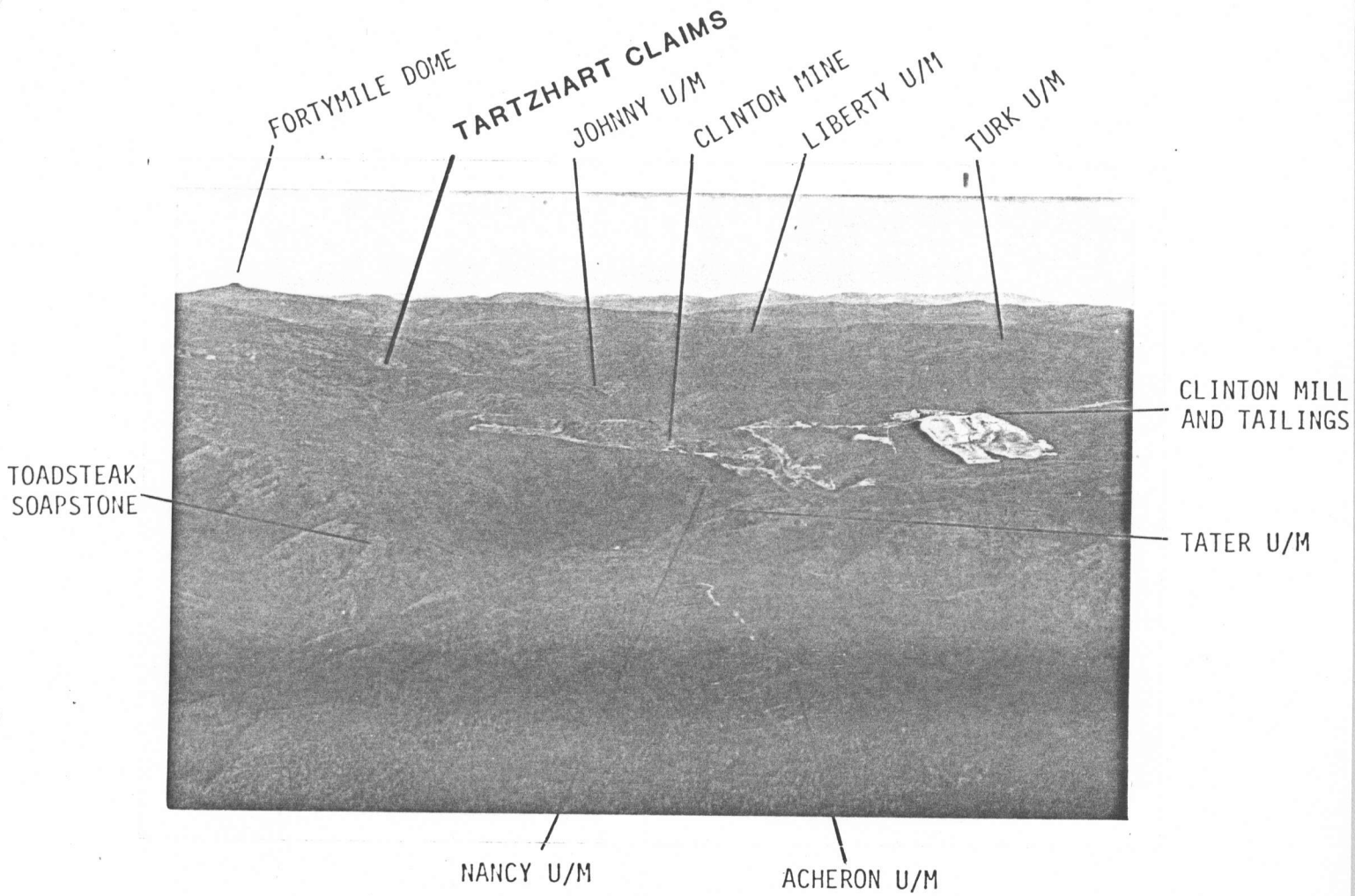
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INTRODUCTION

The Tartzhart property was staked in May and June, 1981 by Teslin Joint Venture (Brinco Mining Ltd., Cominco Limited and Exploram Minerals Ltd.). The 1981 program was managed by J. Scott Murray of Archer, Cathro & Associates (1981) Limited, under the general supervision of R.J. Cathro.

The 1981 field work consisted mainly of excavator pitting with some grid soil sampling, linecutting and geological mapping. Work was conducted from the Clinton Creek townsite near the former Clinton Mine which is located about 3 km east of the property. Contract pitting was performed with a Caterpillar 225 excavator operated by IBEX Construction Ltd. of Whitehorse. Daily access to the property was by helicopter.

The Archer, Cathro crew consisted of party chief J.S. Murray, geologist J. Ryan, senior assistant I. Talbot, linecutters S. Beckman and G. Stewart, and samplers M. Luxmoore and M. Penner.



CLINTON CREEK, LOOKING NORTHEAST

PROPERTY, LOCATION AND ACCESS

This property is situated on the south side of Clinton Creek adjoining the Clinton Mine lease, approximately 3 km southwest of the Clinton minesite, at 64 26'N and 140 48'W on claim sheet 116 C/7. It consists of 13 contiguous mineral claims that were recorded in the name of Archer, Cathro & Associates (1981) Limited in the Dawson Mining District as follows:

<u>CLAIM NAME</u>	<u>NO. CLAIMS</u>	<u>RECORD NO.</u>	<u>EXPIRY DATE</u>
Tartzhart 25	1	YA 55628	24 April 87
27-38	<u>12</u> 13 ==	YA 55629-40	24 April 87

A Bell 47 G3/B2 helicopter, on charter from Trans North Turbo Air of Whitehorse, was used for daily crew transport to the property and several helicopter pads were cleared for access. A rough cat trail leading from the Clinton Mine to the Fortymile River about 10 km upstream from Clinton Creek crosses the claims and was used to bring a Cat 225 excavator onto the property. The cat trail is only passable by tracked vehicles.

HISTORY AND PREVIOUS WORK

The area now covered by Tartzhart claims was first staked as the Bill claims by Cassiar about 1970. Cassiar performed geological mapping and a ground magnetic survey the following year but the claims were allowed to lapse about 1972. No trenching or other physical work was performed.

The claims covering the Johnny ultramafite, located about 500 m east of the Tartzhart claim boundary, were apparently staked as fringe claims by M. Fuhr during 1957 shortly after the staking of the Clinton Mine. While the early history is poorly documented, the claims were optioned by Canex Aerial Exploration Ltd. and explored with a magnetometer survey and bulldozer trenching in 1958. Although that work discovered and exposed the Johnny showing, there is no record of further work. The claims reverted to the staker and were sold to Cassiar, which surveyed them and added them to the mine lease about 1964.

Modern exploration in the camp dates from the optioning of the Caley and Clinton asbestos discoveries by Conwest. The discovery outcrops on Snowshoe Hill were first staked in April, 1957 by prospectors G. Walters and A. Anderson, who were grubstaked by Fred Caley, a Dawson merchant. Caley had optioned claims covering the Caley asbestos deposit on Cassiar Creek to Conwest the previous year and was successful in stimulating interest in asbestos exploration among residents of the Dawson area. The presence of asbestos in the Clinton Creek area had been known since before 1887, when the rumours were reported by the G.S.C.

Caley's Clinton Creek claims were optioned by Conwest soon after they were recorded and were transferred to an affiliate, Cassiar Asbestos Corp. Ltd., late in 1957 following prospecting and hand trenching. Cassiar explored with trenching, diamond drilling and two adits (250 m) in the main (west) zone on Porcupine Creek and a 365 m adit on a smaller zone 300 m to the east on Snowshoe Hill in 1957-58. Initial tunnelling however,

failed to locate the main orebody on Porcupine Hill and it was not until a fluxgate magnetometer survey was performed in 1961, that the major portion of the Porcupine ultramafite was outlined.

The property remained idle until 1963 when about 45 surface diamond drill holes and 29 underground holes tested the magnetic anomaly and led to the discovery of the orebody. A feasibility study was completed about 1965 and mining commenced in April, 1967. The Porcupine and Snowshoe open pits produced more than 15.5 million tonnes of ore grading about 5.9% fibre and milling recovered more than 910 thousand tonnes of asbestos by mine closure on August 19, 1978.

The earliest reported asbestos discovery away from the Clinton Mine was located on the west bank of the Yukon River, about 3 km south of Fortymile. This showing was staked initially in 1895, restaked as the Aurora claims in 1912 and subsequently restaked as the Verlene claims in 1928. The 1912 claim application stated that this was an asbestos occurrence. Chrysotile fibre up to 5 mm long occurs at this locality. It is associated with fibrous tremolite in two small, highly sheared, ultramafite bodies, one of which is capped by Tertiary columnar basalt. Much of the chrysotile is slip fibre and total fibre content is less than 1%. The showing has no current economic potential.

GEOGRAPHY

The Tartzhart claims are situated within the unglaciated portion of the Yukon Plateau which is marked by poor bedrock exposures. Regional uplift in the late Tertiary, together with disrupted drainage patterns to the east caused by glacial advance in the Pleistocene from the Ogilvie Mountains, has resulted in substantial rejuvenation and some disruption of the drainage system. Major tributaries, such as Clinton Creek, are incised into steep, V-shaped valleys with low gradients and steep headwalls.

The Tartzhart claims cover all three elements of terrain in this district - plateau, incised valleys, and alluvial terraces. Gravels resembling the Klondike White Channel Gravel are present at about 700 m elevation on the Clinton Mine lease and probably extend onto the Tartzhart claims at similar elevations. Clay is common in overburden below the 700 m elevation and may be alluvial in origin. Vegetation consists of thick black spruce, alder, aspen and poplar except on the moss-covered, north-facing slopes where permafrost occurs.

REGIONAL GEOLOGY

The Clinton Creek camp is situated within the Yukon Plateau and is sharply bounded to the northeast by the late Cretaceous Tintina Fault. The district has a complex geological history resulting from tectonic activity that has thoroughly deformed and intermixed several major rock assemblages. Ages are difficult to estimate since the fossil

record has mainly been obliterated by deformation and regional metamorphism and contacts are obscured by overburden cover.

Rocks in this region have been subdivided by government geologists into three major packages: Nasina Suite (OSD); Anvil Allochthon (CPV); and, Klondike Schist (LPK). In the continental collision model proposed by Tempelman-Kluit (1979), the Nasina Suite represents the North American plate margin material. The Anvil Allochthon and Klondike Schist represent seafloor material and continental "Stikinia" plate rocks obducted onto the North American plate during a collision in Jurassic(?) time. The thrust faulting associated with the collision resulted in complex interfingering of the three units, destruction of sedimentary features and development of new cataclastic textures.

Anvil Allochthon

The allochthonous overthrust block consists of an ophiolite suite composed of alpine-type ultramafite, gabbro, basalt, chert and limestone. In the Clinton Creek camp, these rock types are usually present as their metamorphosed equivalents: serpentinite with associated hornblende diorite, amphibolite, and chlorite schist. The ophiolite assemblage has become highly dismembered by thrusting and most serpentinite bodies are enveloped in graphitic schists of the Nasina Suite.

The ultramafites (CPub) are typically fairly small bodies composed of massive, dark green, fine to medium grained magnetic serpentinite derived from both peridotite and dunite. Most of them are highly sheared, reflecting a stressful emplacement, and are enclosed in metamorphosed host rocks. No

relationship has been established yet to link the metamorphic grade of surrounding rocks to fibre development within serpentinite. However, it seems probable that strong shearing in the wall rocks is important in creating islands of unsheared serpentinite within which tensional fracturing and fibre veins can develop.

Cross fibre veins in commercial-grade mineralization seldom show straining or strong disruption except within localized shear zones, indicating they formed at a late stage in the emplacement and alteration of the ultramafite. In the Clinton Creek and Caley orebodies, blocky fracturing with commercial fibre lengths and quantities constitute less than 10 per cent of the serpentinite. These zones are surrounded by sheared varieties of serpentinite such as fish-scale that are typical of other bodies in the camp.

Some serpentinite bodies contain augen-like bodies of relic, massive serpentinite or lens-shaped bodies of diorite. A few of the massive lenses, such as those at the Tjop property, contain cross fibre veins that may have formed during or shortly after emplacement. Some of the fibre veins near the edges of these bodies are highly deformed and drawn out. Similarly, fibre veins that formed in the blackwall alteration zones surrounding diorite lenses (black pods), such as those at the Toc property, often exhibit curved veins and chrysotile fibres that are bent in the direction of movement. Both types of bodies are usually too widely dispersed through a sheared serpentinite to have economic importance.

The margins of many serpentinite bodies are altered to soapstone; for example at the Tjop and Tiza properties. This

suggests that temperatures exceeded 400 deg C for a short period after emplacement, probably during regional metamorphism. Quartz-carbonate alteration, which consists of magnesite, talc and opaline silicates, is common and is probably also a post-mineralization event since the alteration is sometimes pseudomorphic after chrysotile fibre. Transformations from serpentinite to quartz-carbonate are displayed best in the Clinton Creek Mine, where long fibre veins can occasionally be traced from serpentinite into highly altered rock. This is a gradual change from silky chrysotile to harsh opal along the veins and is not accompanied by physical disruption.

Fine to medium grained, light grey to dark green, biotite or hornblende-rich diorites occur along with the ultramafites at several locations and are usually considered to be part of the Anvil Allochthonous suite. The diorites occur as small lens-shaped bodies or "dykes" that are enclosed by serpentinite and often are associated with black-pod mineralization, as at the Toc property. Alternatively, diorite forms large, stock-like bodies up to several metres across adjacent to the ultramafites, as at the Tjop property. Contacts between the larger bodies of diorite and serpentinite are usually altered to quartz-carbonate, whereas the smaller dykes usually exhibit "blackwall" alteration. This suggests that the diorites are slightly younger than the ultramafites. The smallest dykes are usually enveloped by highly sheared serpentinite and appear to have been squeezed and dismembered into their present lensy form by strong tectonic forces.

Nasina Suite

The Nasina suite has been defined by Tempelman-Kluit (1976) as a distal sequence of carbonaceous and quartz-rich sedimentary rocks. They have been mostly metamorphosed to greenschist facies and now consist of palegreen quartz-mica-chlorite schist, grey to silvery colored quartz-muscovite schist, graphitic schist, chloritic quartzite and minor quartz-biotite gneiss. Although the sequence is not well understood and correlations are difficult to establish, a tentative age of Ordovician to Devonian has been assigned to the Nasina. Rubidium/strontium and potassium/argon age determinations by Htoon (1979) near the Clinton Mine suggest a Permian age, although one sample of biotite schist returned a rubidium/strontium age of 470 ma, which is Ordovician. The younger dates may reflect the date of latest metamorphism or of regressive (biotite to chlorite zone) metamorphism, while the Ordovician date may reflect the age of deposition or of earlier metamorphism.

Preliminary mapping by J.G. Abbott of DIAND in the vicinity of Clinton Mine during 1981 revealed the presence of slightly metamorphosed carbonaceous mudstone, limy sandstone and tuffaceous phyllite that he tentatively assigned to the Nasina suite. These rocks probably represent the unmetamorphosed equivalents of the common Nasina suite rocks. They resemble rocks mapped elsewhere in Yukon that are Triassic in age and fossil conodonts tentatively identified from Clinton Mine rocks in 1982 support this assumption. Abbott demonstrated fairly conclusively that the Nasina suite underlies the allochthonous assemblage and concluded that the graphite schist adjoining the orebody was derived from Nasina rocks.

Klondike Schist

The Klondike schist is a cataclastic rock that is thought to be derived from felsic intrusive rocks. In the Clinton Creek camp, quartz-rich cataclastics, gneisses and quartz-muscovite cataclastic schist are common. Age relationships are difficult to determine as the Klondike schists cannot be related to other rock units. Radiometric ages of 138 and 145 ma were obtained from samples of cataclastic material by Tempelman-Kluit (1976). These dates are late Jurassic and probably reflect the time of cataclasis.

Igneous Rocks

Igneous rocks in the belt consist of lower Cretaceous biotite granodiorite and quartz monzonite and Tertiary feldspar porphyries. These have been combined for simplicity on Figure 3 as unit Tqfp but are differentiated on GSC Map 1284a. One of the largest quartz monzonite stocks in the district is located about 2 km west of the Tjop claims. It consists of plagioclase, biotite and altered grains of hornblende with minor amounts of potash feldspar, quartz and magnetite. Granitic gneiss and amphibolite have developed along contact zones. The eastern contact of this body was explored for tungsten mineralization by Noranda during 1981.

Small bodies of feldspar porphyry occur throughout the region. These rocks are characterized by phenocrysts of feldspar and quartz up to several mm in length in a light grey to grey-green, fine grained groundmass. One of the largest of these porphyry bodies, on Cassiar Dome, was staked by Cominco for molybdenum-tungsten potential as the Pluto claims and was

drilled in 1981. A porphyry dyke at the southeast corner of the Tjop claims was staked in 1927 for sulphide mineralization as the Roal occurrence. Also,

basalt associated with a small porphyry dyke on the Thane grid area was found to contain traces of uranium mineralization. The porphyry bodies are probably more numerous than was previously known and some may host important base metal mineralization.

Olivine basalt (Tv) occurs locally in the region and is probably the youngest rock type as it overlies all other units.

References

- Htoon, M.
1979: Geology of the Clinton Creek asbestos deposit, Yukon Territory; unpublished M.Sc. Thesis, University of British Columbia.
- Tempelman-Kluit, D.J.
1976: The Yukon crystalline terrane: Enigma in the Canadian Cordillera; Geological Society of America Bulletin, v. 87, pp. 1343-1357.
1979: Transported cataclasite, ophiolite and granodiorite in Yukon: Evidence of arc-continent collision; G.S.C. Paper 79-14.

GEOLOGY AND MINERALIZATION

The Tartzhart claims are mainly underlain by low grade metamorphic rocks and cataclastic rocks of the Nasina suite and Anvil Allochthon, respectively. Bedrock is rarely exposed on the claims except in a few small outcrops along Tartzhart Creek and at the headwaters of Martin Creek where trenching was performed. The exposures mainly consist of graphitic schist, chlorite schist and limestone. Fragments of graphitic argillite and unmetamorphosed limy sandstone of probable Triassic age were also found in soil sample pits which were dug at 200 m by 50 m intervals across the claims. Similar rocks envelop the Clinton Mine and the Johnny ultramafite body but no ultramafite rocks have yet been located on this property.

The Tartzhart claims were staked to cover anomalous concentrations of asbestos fibre in soils collected during reconnaissance sampling and to cover a broad aeromagnetic anomaly that extends southwesterly from the Johnny ultramafite located on the western edge of the mine lease. This ultramafite is partially exposed for about 200 m along the south bank of Clinton Creek at the west end of Hudgeon Lake, and contains an old asbestos occurrence called the Johnny showing. The showing was found to have surprisingly high potential when it was re-examined in 1981, considering it is situated less than 2 km from the mine and apparently has not been explored since 1958. The showing is located only 500 m from the Tartzhart claim boundary and for that reason, it is described here in detail.

The Johnny showing consists of a zone of fibre-bearing blocky serpentinite in a sparsely vegetated, steep hillside overlooking the Clinton Creek valley. The serpentinite float is restricted to the steep creek bank and is bounded to the south by a gentle hillside and terrace that is devoid of outcrop. Records of the early ground magnetometer survey have been lost, except for a large scale compilation map prepared by Cassiar in 1970 that shows a magnetic high extending back from the trenched area for at least 500 m. A 200 gamma aeromagnetic anomaly indicated on government survey maps extends from this ultramafite westerly along Clinton Creek for about 1 km and southwesterly for about 2 km.

Rocks hosting the ultramafite consist of unmetamorphosed graphitic argillite and calcareous sandstone, which are similar to those on the Tartzhart claims and at the Clinton Mine. A contact between the serpentinite and underformed limy sandstones is exposed in the uppermost trenches and appears to dip south at a low angle. Graphitic argillites are exposed in lower trenches on the eastern side of the showing.

The ultramafite is composed mainly of massive serpentinite with some blocky sections. It is quite soft, grey-green and contains bastites, all of which give it a close resemblance to Clinton Mine ore. Fibre occurs in the massive serpentinite but is restricted to widely spaced veins up to 1 m long and 10 mm wide with a total fibre content of less than 1%. The best mineralization occurs in blocky serpentinite and is exposed in two trenches about 50 m apart near the upper contact. The mineralized section is 30 m long in one trench and shorter in the other. A well developed fibre mat up to 50 cm thick

contains fibre up to 13 mm long and is the best mat seen in the Clinton Creek camp other than that covering the Clinton and Caley Mines. The fibre is visually estimated to grade about Group 5 and to represent the weathering of a mineralized zone containing up to 5% total fibre. The best content seen in talus fragments is about 2 to 3%.

Solid outcrop is not present where the fibre mat is best developed. As at the Clinton Mine, fibre veins quickly lose their binding qualities when exposed to weathering, which causes the enclosing serpentinite fragments to become separated and dispersed. Although the depth of weathering can only be determined by further trenching or drilling, it was found to extend to depths of up to 10 m in better grade areas of the Snowshoe pit. Rock fragments up to 30 cm across are present in the trenches but most fragments are much smaller. These usually have several flat surfaces, indicating that they were bounded by fibre veins prior to weathering.

The Johnny showing is almost as good as the original showings at the mine, which proved to be an indication of the orebody rather than a representative part of it. Its similarities in style of mineralization, geological setting and proximity to the mine are all favorable features. However, because the Johnny showing occurs on the mine lease and was outside the TJV agreement area, no work other than soil sampling was carried out in 1981. The adjoining TJV property has similar geology, and aeromagnetic and fibre dispersion surveys indicate that the Tartzhart claims are likely underlain by either an extension of the Johnny ultramafite or a separate ultramafite that has not yet been identified.

SAMPLING AND EXCAVATING

Soil sampling grids were established throughout the Clinton District in 1981 to investigate anomalous silt and soil responses from reconnaissance traverses performed earlier. On the Tartzhart claims, about 1400 soil samples and 54 silt samples were collected at 50 m spacing on compass lines 200 m apart. About 22 km of baselines were cut for survey control. Three anomalies were outlined by the sampling and two of these were investigated with 24 excavator pits, as shown on Figure 3 in pocket. Some additional samples were collected concurrently on the Clinton Mine lease but no excavator work was done in that area.

SAMPLING AND PITTING RESULTS

Anomalies F & G are two oval shaped anomalies located on the southwestern portion of the Tartzhart claims that are thought to be caused by human contamination. Each consists of about eight samples within an area 300 m by 200 m. The soils gave point values of up to 87b and 133b for Anomalies F & G, respectively.

The soils from the two anomalies were collected by different samplers but one of them had visited the Johnny showing prior to his traverse and the other had handled the rock samples brought from the showing. One sample from Anomaly G was collected from thin residual soils near a large schist outcrop where it is unlikely that naturally occurring chrysotile could occur. All samples surrounding these

anomalies contain no fibre. Ten excavator pits were dug at Anomaly F plus eight more on weaker soils farther north on the same traverse line and all were in schist. Six pits were also dug at Anomaly G with the same result. Geological notes on each pit dug are included in Appendix 2 following this report.

Anomaly H is situated on the western edge of the mine lease and extends 1.5 km south from the Johnny Showing. It is centered on the ridge between Tartzhart and Bear Creeks, which is at least 100 m higher in elevation than the Johnny Showing. The southwestern corner of the anomaly crosses onto the Tartzhart claims. Point scores of up to 131a were reported from the trenches and up to 56a from the thin sidehill soils at the vegetation anomaly. Higher on the ridge, where the overburden is thickest, the fibre quantities are reduced to "b" and "c" values with erratic point scores of up to 122b. Soil samples surrounding the anomaly contain either no fibre or spurious low amounts typical of airborne contamination.

The Johnny ultramafite is exposed only on the steep sides of Clinton Creek, where all previous work was concentrated, and outcrop is absent on the gently rising terrain to the south. An old magnetometer survey by Cassiar indicates that a magnetic high extends 500 m south of the showing in the area of the soil anomaly. No excavator pitting was done on either Anomaly H or the Johnny ultramafite during 1981.

SUMMARY AND RECOMMENDATIONS

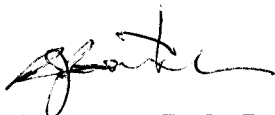
The Tartzhart claims were staked contiguously on the western side of the Clinton Mine lease to cover anomalous concentrations of asbestos fibres in soils detected by a sampling technique pioneered by TJV. A mineralized ultramafite body called the Johnny ultramafite outcrops on the mine lease less than 500 m from the northeast Tartzhart claims boundary and an intense aeromagnetic anomaly extends from the showing onto the claims for at least 2 km. The claims are thoroughly covered by overburden and a promising target called Anomaly H, adjacent to the Johnny ultramafite, has not yet been excavated.

Pitting on the southern portion of the claims in 1981 has shown that Anomalies F and G are underlain by schist and sample contamination is suspected in that area.

A one week program of bulldozer trenching or rotary drilling is recommended to expose and evaluate the bedrock at Anomaly H.

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED



R.J. Cathro, B.A.Sc., P.Eng.



J. Scott Murray

APPENDIX 1

APPENDIX 1

FIBRE DISPERSION SURVEYS

THEORY

Fibre dispersion surveys take advantage of the fact that chrysotile is chemically resistant to weathering and maintains its fibrous integrity during weathering and erosion. Thus, fibre can be detected in soils whether it is being dispersed by normal residual erosion in unglaciated areas, such as the Clinton Creek camp, or by glacial scouring. Experience has shown that chrysotile fibre is so much more resistant to weathering than its host serpentinite that it can be found in soil in areas that are devoid of obvious serpentinite outcrops or talus.

In theory, the amount of fibre in the soil should be directly proportional to the amount of underlying mineralization, since the bulk of the fibre occurs in simple veins that break apart readily when subjected to weathering. Like conventional geochemical surveys, however, simple dispersion patterns and strongly anomalous contrasts only occur around buried fibre occurrences that are covered by simple soil profiles. TJV sampling has shown that all serpentinite bodies contain fibre and that even those that are apparently unmineralized have a low background level that is detectable in soil.

Fibre veins pinch and swell, and are usually divided along their length by a central parting. Weathering of chrysotile mineralization frees fibre veins from the walls and breaks their partings, causing the veins to disintegrate into rod-shaped fragments called fibre bundles (or spicks). Further weathering will cause these bundles to split lengthwise into thinner strands called fibrils. Experience has shown that individual fibrils are unusually strong and that they will seldom break transversely, although they can split longitudinally into thinner fibrils.

In soils, the longest fibrils reflect the maximum width of veins between partings, but seldom the distance between the vein walls.

Much of what is known about the relationship between length and quantity in a fibre deposit has come from milling practise. TJV has assumed that the weathering of fibre is analagous to the milling of fibre to produce a commercial blend of lengths. Milling experience has shown that fibre lengths in a deposit are inversely proportional to the quantity of short fibres, and that the total quantity of fibre in the rock is roughly proportional to fibre length. This suggests that, under most conditions, the number of fibre veins that develop in a block of serpentinite is fairly constant and that the main variable is fibre length (vein thickness). Thus, if conditions are favourable, longer fibres will form in many of the fractures, thereby increasing both the average length (and value) as well as the proportion of the rock that is fibre (ore). When conditions are unfavourable, only short fibre will form and the total fibre content of the rock will remain low. The validity of this concept is confirmed by the fact that long fibres are seldom found in lower grade ores.

The laboratory technique and interpretation methods used by TJV have been designed to identify samples that contain longer fibres and, by definition, have a better probability of having been derived from commercial mineralization. Most commercial deposits contain abundant 6.5 mm fibre. For example, Group 5 specifications stipulate that about 20% must exceed that length. Since 6.5 mm fibres are rare in TJV samples and have only been found in samples collected near important occurrences, that length has been chosen as an important threshold in fibre dispersion surveys.

POINT VALUES

In the TJV sampling, it has been found that most samples contain less than 100 fibres and that quantities exceeding 10,000 fibres are only obtained when sampling has encountered a fibre mat. A fibre mat is fairly uncommon in TJV sampling, either because the sample cannot be collected deep enough or because there is insufficient fibre in bedrock. Alternatively, some soils are too mixed by solifluction to permit the development of a mature profile. As a result, most samples do not contain enough fibres to be sure that the longest fibre present in the bedrock source are represented.

For example, the probability of collecting a fibre 6.5 mm long in soil over asbestos veins containing some fibres 6.5 mm long is high if the sample contains over 10,000 fibres (a fibre mat) but is poor if the sample contains only 10 fibres.

To overcome this difficulty, a "point" value is calculated by the laboratory at Kamloops which utilizes standard relationships between fibre lengths and quantities and greatly simplified the interpretation of soil results.

By permitting the comparison of samples containing different quantities of fibre, the points help to overcome the field difficulty of collecting samples of uniform quality.

Using the example quoted above, the sample containing 10 fibres and a longest fibre of 3.2 mm would have the same point score (50 points) as the fibre mat sample with 10,000 fibres and a maximum length of 6.5 mm. A point score of 50 seems to be a good threshold value since nearly all soils tested from commercial-grade asbestos showings have scores of 50 or more.

Field testing of this method in 1981 showed that it loses its statistical validity once the number of fibres in the soil falls to a low level. For example, a soil sample containing only three fibres will give a point score of 34 if the longest fibre is 2 mm long, but a much higher score of 75 if the longest fibre measures 3 mm.

To overcome this weakness, it was necessary to rate samples according to the number of fibres present by adding a suffix to the point number. Points with an "a" suffix have the highest reliability and those marked "d" the lowest, as shown below:

<u>Suffix</u>	<u>Fibre quantity/sample</u>
a	more than 100 fibres
b	10 to 99 fibres
c	4 to 9 fibres
d	1 to 3 fibres

Samples with quantity "a" are usually collected where soils are thinnest over ultramafites. Soils with "d" ratings generally fringe ultramafite bodies, contain spurious fibre because of contamination, or reflect deeper and more complex overburden profiles. For a given ultramafite, scores derived from "a" soils and from "d" soils will be roughly similar but the "d" scores will be more erratic. Statistics show that over 90% of all "d" scores were less than 50 points and fibres 3 mm or more in length seldom occur in "d" soils. A graph of point value frequencies for each quantity suffix is shown on Figure 2 on the following page.

POINT VALUE FREQUENCIES

Quantity suffixes	No. of samples
a	394
b	512
c	378
d	<u>916</u>
TOTAL	2200

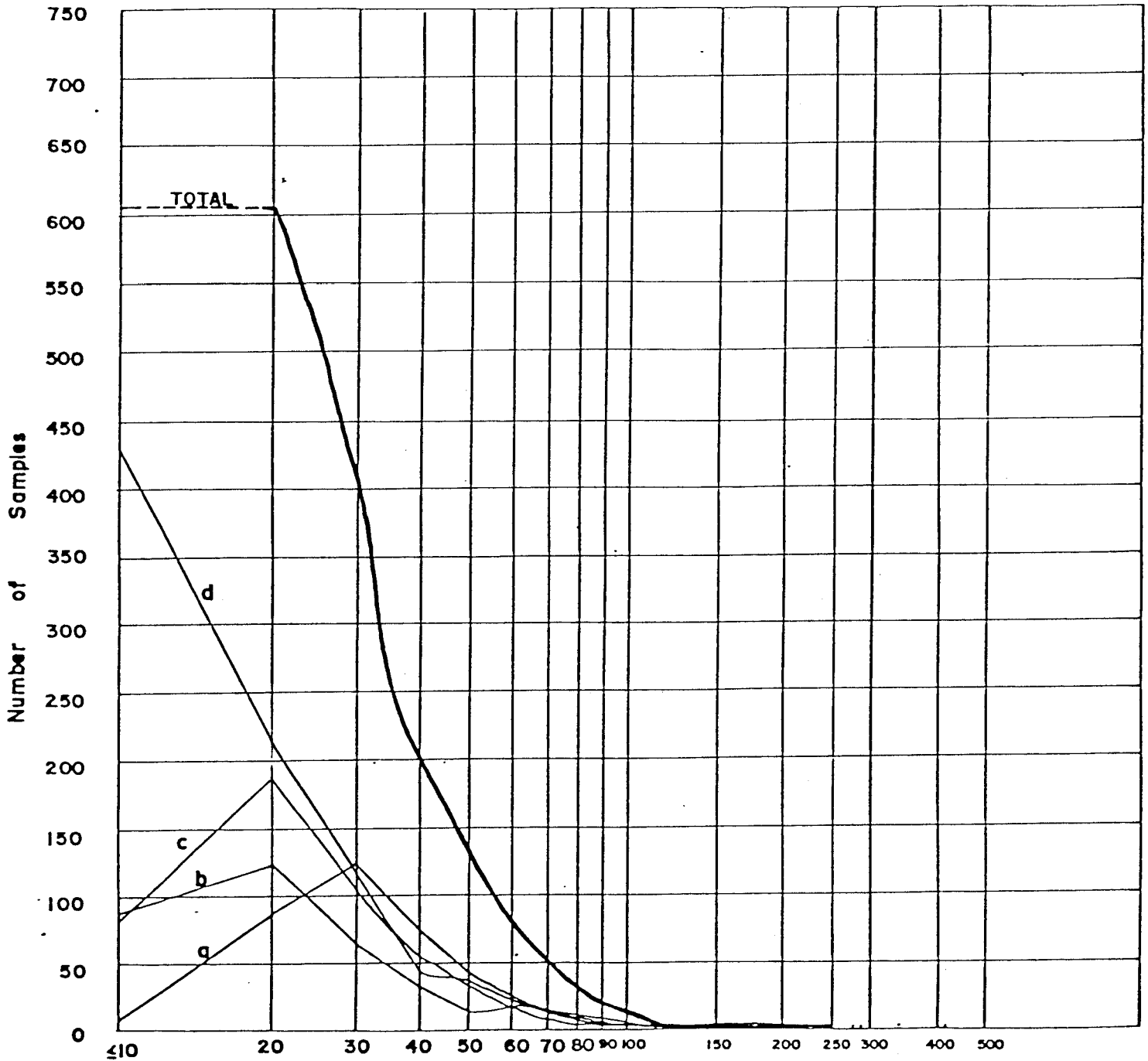


Figure 2

APPENDIX 2

TARTZHART_EXCAVATOR_PIT # 1

Date: Aug. 9, 1981

Location: 99+00 N, 86+00 E

Volume: 18 cu.m Size: 2.3 m deep, 6.0 m long, 1.5 m wide

Rock Types: a) Soil fragments: Graphitic Schist

b) Bedrock: Graphitic schist

Profile: 0.0 - 0.1 m ...Organic

0.1 - 0.3 m ...Brown silty clay with graphitic schist
fragments

0.3 - 2.0 m ...Highly weathered black graphitic schist

2.0 - 2.3 m ...Bedrock: Black graphitic schist,
moderate folding

Comments:

TARTZHART_EXCAVATOR_PIT # 2

Date: Aug. 9, 1981

Location: 98+00 N, 86+00 E

Volume: 84 cu.m Size: 7.0 m deep, 6.0 m long, 2.0 m wide

Rock Types: a) Soil fragments: Graphitic schist

b) Bedrock: Black graphitic schist

Profile: 0.0 - 0.1 m ...Organic

0.1 - 6.0 m ...Probable bedrock: highly weathered black
graphitic schist

6.0 - 7.0 m ...Bedrock: black graphitic schist

Comments:

TARTZHART_EXCAVATOR_PIT # 3

Date: Aug. 9, 1981

Location: 97+00 N, 86+00 E

Volume: 32 cu.m Size: 3.5 m deep, 6.0 m long, 1.5 m wide

Rock Types: a) Soil fragments: Graphitic schist

b) Bedrock: Graphitic schist

Profile: 0.0 - 0.1 m ...Organic

0.1 - 0.4 m ...Brown silty clay

0.4 - 3.0 m ...Highly weathered black graphitic schist

3.0 - 3.5 m ...Bedrock:black graphitic schist, small
amounts of quartz and mica

Comments:

TARTZHART_EXCAVATOR_PIT # 4

Date: Aug. 10, 1981

Location: 93+00 N, 86+00 E

Volume: 35 cu.m Size: 7.0 m deep, 5.0 m long, 1.0 m wide

Rock Types: a) Soil fragments: Quartz-graphite schist

b) Bedrock: Graphite schist

Profile: 0.0 - 0.1 m ...Organic

0.1 - 6.5 m ...Grey silty clay with fragments of grey
quartz-graphite schist

6.5 - 7.0 m ...Highly weathered, well folded grey
quartz-graphite schist - probably
bedrock

Comments:

TARIZHART_EXCAVATOR_PIT # 5

Date: Aug. 10, 1981

Location: 92+50 N, 86+00 E

Volume: 9 cu.m Size: 2.0 m deep, 3.0 m long, 1.5 m wide

Rock Types: a) Soil fragments: Quartz-muscovite-sericite schist
b) Bedrock: Did not reach

Profile: 0.0 - 0.1 m ...Organic

0.1 - 2.0 m ...Light-brown, highly weathered quartz-
muscovite-sericite schist

Comments: Ground too frozen to dig further

TARIZHART_EXCAVATOR_PIT # 6

Date: Aug. 10, 1981

Location: 92+00 N, 86+00 E

Volume: 15 cu.m Size: 3.0 m deep, 5.0 m long, 1.0 m wide

Rock Types: a) Soil fragments: Graphite schist, quartz-muscovite-
sericite schist

b) Bedrock: Did not reach

Profile: 0.0 - 0.1 m ...Organic

0.1 - 3.0 m ...Brown silty clay with fragments of
graphite schist and quartz-muscovite-
sericite schist (10 cm)

Comments: Frozen ground

TARTZHART_EXCAVATOR_PIT # 7

Date: Aug. 10, 1981

Location: 93+50 N, 86+00 E

Volume: 10 cu.m Size: 2.5 m deep, 3.0 m long, 1.5 m wide

Rock Types: a) Soil fragments: Quartz-sericite schist

b) Bedrock: Did not reach

Profile: 0.0 - 0.1 m ...Organic

0.1 - 2.5 m ...Brown clay with fragments of quartz-
sericite schist (10 cm)

Comments: Frozen ground

TARTZHART_EXCAVATOR_PIT # 8

Date: Aug. 11, 1981

Location: 96+50 N, 86+00 E

Volume: 40 cu.m Size: 4.0 m deep, 5.0 m long, 2.0 m wide

Rock Types: a) Soil fragments: Black graphitic schist

b) Bedrock: Did not reach

Profile: 0.0 - 0.1 m ...Organic

0.1 - 4.0 m ...Highly weathered black graphitic schist

Comments:

TARIZHART_EXCAVATOR_PIT # 9

Date: Aug. 11, 1981

Location: 93+50 N, 85+50 E

Volume: 30 cu.m Size: 3.0 m deep, 5.0 m long, 2.0 m wide

Rock Types: a) Soil fragments: Graphitic schist

b) Bedrock: Graphitic schist

Profile: 0.0 - 0.1 m ...Organic

0.1 - 0.3 m ...Brown silty clay

0.3 - 3.0 m ...Bedrock: highly weathered, moderately
folded grey graphitic schist

Comments:

TARIZHART_EXCAVATOR_PIT # 10

Date: Aug. 11, 1981

Location: 93+50 N, 85+00 E

Volume: 48 cu.m Size: 4.0 m deep, 6.0 m long, 2.0 m wide

Rock Types: a) Soil fragments: Graphitic schist

b) Bedrock: Did not reach

Profile: 0.0 - 0.1 m ...Organic

0.1 - 4.0 m ...Highly weathered black graphitic schist

Comments: Ground too frozen to dig further

TARTZHART_EXCAVATOR_PIT # 11

Date: Aug. 11, 1981

Location: 93+50 N, 84+00 E

Volume: 30 cu.m Size: 3.0 m deep, 5.0 m long, 2.0 m wide

Rock Types: a) Soil fragments: Quartz-muscovite schist, graphitic schist

b) Bedrock: Quartz-muscovite schist

Profile: 0.0 - 0.1 m ...Organic

0.1 - 0.3 m ...Black humus-rich soil

0.3 - 2.5 m ...Highly weathered, orange-brown quartz-muscovite schist and graphitic schist

2.5 - 3.0 m ...Bedrock: highly weathered, brown quartz-muscovite schist

Comments: Graphitic schist fragments-probably derived from uphill

TARTZHART_EXCAVATOR_PIT # 12

Date: Aug. 11, 1981

Location: 93+00 N, 84+00 E

Volume: 78 cu.m Size: 6.5 m deep, 6.0 m long, 2.0 m wide

Rock Types: a) Soil fragments: Quartz-muscovite and graphitic schist

b) Bedrock: Quartz-muscovite-sericite schist

Profile: 0.0 - 0.1 m ...Organic

0.1 - 2.0 m ...Light-brown silty clay with quartz-muscovite schist fragments and some grey clay with graphitic schist fragments

2.0 - 6.0 m ...Highly weathered, light orange-brown quartz-muscovite-sericite schist

6.0 - 6.5 m ...Bedrock: grey-brown quartz-muscovite-sericite schist

TARTZHART_EXCAVATOR_PIT # 13

Date: Aug. 12, 1981

Location: 95+50 N, 86+00 E

Volume: 84 cu.m Size: 7.0 m deep, 6.0 m long, 2.0 m wide

Rock Types: a) Soil fragments: Graphitic schist

b) Bedrock: Did not reach

Profile: 0.0 - 0.1 m ...Organic

0.1 - 1.0 m ...Grey clay with fragments of graphitic
schist

1.0 - 7.0 m ...Highly weathered grey graphitic schist
fragments

Comments:

TARTZHART_EXCAVATOR_PIT # 14

Date: Aug 12 , 1981

Location: 96+00 N, 86+00 E

Volume: 35 cu.m Size: 3.5 m deep, 5.0 m long, 2.0 m wide

Rock Types: a) Soil fragments: Graphitic schist

b) Bedrock: Did not reach

Profile: 0.0 - 0.1 m ...Organic

0.1 - 0.5 m ...Brown silty clay with graphitic schist
fragments

0.5 - 3.5 m ...Highly weathered grey graphitic schist,
moderate folding

Comments:

TARTZHART_EXCAVATOR_PIT # 15

Date: Aug 12 ,1981

Location: 95+50 N, 87+00 E

Volume: 30 cu.m Size: 6.0 m deep, 5.0 m long, 1.0 m wide

Rock Types: a) Soil fragments: Graphitic schist
b) Bedrock: Quartz-muscovite schist

Profile: 0.0 - 0.1 m ...Organic
0.1 - 1.0 m ...Brown silty clay with fragments of
graphitic schist
1.0 - 3.0 m ...Highly weathered black graphitic schist
3.0 - 6.0 m ...Bedrock:highly weathered,orange-brown
quartz-muscovite schist

Comments:

TARTZHART_EXCAVATOR_PIT # 16

Date: Aug 12 ,1981

Location: 96+00 N, 87+00 E

Volume: 35 cu.m Size: 7.0 m deep, 5.0 m long, 1.0 m wide

Rock Types: a) Soil fragments: Graphitic schist
b) Bedrock: Graphitic schist

Profile: 0.0 - 0.1 m ...Organic
0.1 - 1.0 m ...Brown silty clay with graphitic schist
fragments
1.0 - 7.0 m ...Bedrock:highly weathered black graphitic
schist

Comments:

TARTZHART_EXCAVATOR_PIT # 17

Date: Aug 12 ,1981

Location: 92+50 N, 84+00 E

Volume: 30 cu.m Size: 4.0 m deep, 5.0 m long, 1.5 m wide

Rock Types: a) Soil fragments: Black biotite schist

b) Bedrock: Black biotite schist

Profile: 0.0 - 0.1 m ...Organic

0.1 - 0.4 m ...Brown loamy soil

0.4 - 1.3 m ...Dark brown mica-rich (biotite) soil

1.3 - 4.0 m ...Bedrock:highly weathered black biotite
schist

Comments:

TARTZHART_EXCAVATOR_PIT # 18

Date: Aug 12 ,1981

Location: 92+00 N, 84+00 E

Volume: 40 cu.m Size: 4.0 m deep, 5.0 m long, 2.0 m wide

Rock Types: a) Soil fragments: Graphitic schist

b) Bedrock: Graphitic schist

Profile: 0.0 - 0.1 m ...Organic

0.1 - 0.7 m ...Brown loamy soil

0.7 - 2.0 m ...Highly weathered blue-black graphitic
schist

2.0 - 4.0 m ...Bedrock:highly weathered graphitic
schist

Comments:

TARIZHART_EXCAVATOR_PIT # 19

Date: Aug 13 ,1981

Location: 94+25 N, 75+00 E

Volume: 10 cu.m Size: 2.0 m deep, 5.0 m long, 1.0 m wide

Rock Types: a) Soil fragments: Graphitic schist, quartz-muscovite
schist

b) Bedrock: Did not reach

Profile: 0.0 - 0.1 m ...Organic

0.1 - 0.8 m ...Black soil with graphitic schist
fragments (5 cm)

0.8 - 2.0 m ...Orange-brown clay with fragments of
quartz-muscovite schist (5 cm)

Comments:

TARIZHART_EXCAVATOR_PIT # 20

Date: Aug 13 ,1981

Location: 93+50 N, 74+50 E

Volume: 6 cu.m Size: 1.5 m deep, 4.0 m long, 1.0 m wide

Rock Types: a) Soil fragments: Graphitic schist

b) Bedrock: Did not reach

Profile: 0.0 - 0.1 m ...Organic

0.1 - 0.3 m ...Dark brown humus-rich soil

0.3 - 1.5 m ...Black clay with graphitic schist frags.

Comments: Ground too frozen to dig further

TARIZHART_EXCAVATOR_PIT # 23

Date: Aug 14 ,1981

Location: 94+00 N, 72+00 E

Volume: 10 cu.m Size: 2.0 m deep, 5.0 m long, 1.0 m wide

Rock Types: a) Soil fragments: Quartz-graphite gneiss

b) Bedrock: Did not reach

Profile: 0.0 - 0.1 m ...Organic

0.1 - 0.4 m ...Black humus-rich soil

0.4 - 2.0 m ...Black clay with quartz-graphite gneiss
boulder

Comments: Frozen ground

TARIZHART_EXCAVATOR_PIT # 24

Date: Aug 14 ,1981

Location: 93+50 N, 72+00 E

Volume: 45 cu.m Size: 6.0 m deep, 5.0 m long, 1.5 m wide

Rock Types: a) Soil fragments: Chlorite schist and limestone

b) Bedrock: Did not reach

Profile: 0.0 - 0.1 m ...Organic

0.1 - 0.3 m ...Dark brown humus-rich soil

0.3 - 1.0 m ...Green clay with chlorite schist frags.

1.0 - 6.0 m ...Black-green clay with chlorite schist
fragments and grey-white limestone
boulder at 4 m

Comments: Frozen ground

ARCHER, CATHRO

AND ASSOCIATES LTD.

CONSULTING GEOLOGICAL ENGINEERS

Box 4127, WHITEHORSE, Y.T. Y1A 3S9 667-4415

STANDARD BUILDING, VANCOUVER, B.C. 688-2568

1016 STANDARD BUILDING
510 WEST HASTINGS STREET
VANCOUVER, B.C.
V6B 1L8

CERTIFICATE

I, Robert J. Cathro, with business addresses in Whitehorse, Yukon Territory and Vancouver, British Columbia, and residential address in West Vancouver, British Columbia, do hereby declare

1. I am a consulting engineer.
2. I am a 1959 graduate of the University of British Columbia in geological engineering.
3. From 1959 to 1965 I was engaged in mining and exploration geology with United Keno Hill Mines Ltd., Giant Yellowknife Mines Ltd., and Eldorado Mining and Refining Ltd. I entered private practice in January, 1966.
4. I am a registered professional engineer in British Columbia and Yukon Territory.
5. I have supervised the work described in this report.

Respectfully submitted,



R.J. Cathro, B.A.Sc., P.Eng.

/mc

STATEMENT OF QUALIFICATIONS

J. Scott Murray

Scott Murray was raised at Abbotsford, B.C. and attended U.B.C., B.C.I.T. and Selkirk College. He was employed by Cassiar Asbestos Corp. from 1973 to 1978 as a geological technician at both the Cassiar and Clinton Mines. During this period he was engaged in all phases of mapping, surveying, grade control and exploration for asbestos fibre. From 1979 to present Mr. Murray has supervised asbestos exploration for Archer, Cathro & Associates (1981) Limited.

A handwritten signature in black ink, appearing to read 'J. Scott Murray', written over a horizontal line.

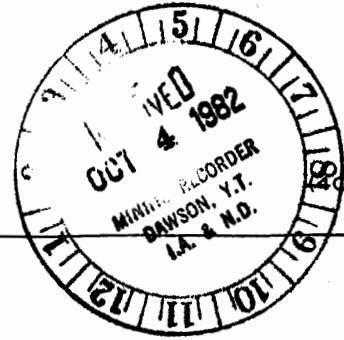
J. Scott Murray

ARCHER, CATHRO

AND ASSOCIATES (1981) LIMITED

CONSULTING GEOLOGICAL ENGINEERS

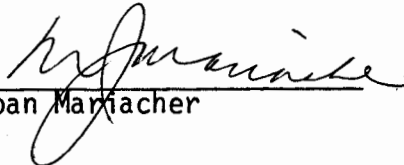
Box 4127, 3125 THIRD AVENUE
WHITEHORSE, Y. T. Y1A 3S9



AFFIDAVIT

I, Joan Mariacher, of Whitehorse, Y.T., make oath and say:

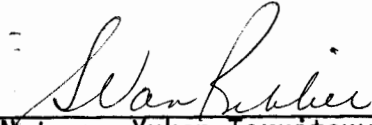
That to the best of my knowledge the attached Statement of Expenditures for exploration work on the Tartzhart 25 and 27-38 mineral claims on Claim Sheet 116C/7 & 8 is accurate.



Joan Mariacher

Sworn before me at Whitehorse, Y.T.

this 1st day of October, 1982.



Notary, Yukon Territory

091401

Statement of Expenditures
Trenching and Pitting
Tartzhart 25 and 27-38 Claims
May 25, 1982

Ibex Contracting Ltd. - contract excavator	\$6,016.00
Trans North Air - contract Bell 47 G3/B2 helicopter at \$322/hour including fuel - 7 hours	<u>2,254.00</u>
Total	<u><u>\$8,270.00</u></u>

DRIVER'S TIME SHEET

DRIVER'S NAME	UNIT NO.	DATE	REF. NO.		
<i>Wiff tests</i>		<i>Aug 8/81</i>	MILES	HOURS	FUEL
<i>IBEX const</i>					
<i>machine hrs, worked</i>				<i>1</i>	
<i>machine 225</i>					
<i>[Signature]</i>					
<i>[Signature]</i>					
<i>[Signature]</i>					
<i>[Signature]</i>					
TOTALS					

DRIVER'S TIME SHEET

DRIVER'S NAME <i>Will Du Cort</i>	UNIT NO.	DATE <i>Aug 11/81</i>	REF. NO.		
			MILES	HOURS	FUEL
<i>IBEX Const</i>					
<i>Machine hrs worked</i>				<i>11</i>	
<i>Backbone 225</i>					
<i>T.S.V.</i> <i>ch</i>					
TOTALS					

YUKON OFFICE SUPPLIES

MOORE SPEEDPLY - 3 - MOORE CLEANPRINT PATENTED 1963-1966 ©

DRIVER'S TIME SHEET

DRIVER'S NAME <i>Will Du Cort</i>	UNIT NO.	DATE <i>Aug 10/81</i>	REF. NO.		
			MILES	HOURS	FUEL
<i>IBEX Const</i>					
<i>Machine hrs. worked</i>				<i>11</i>	
<i>Machine 225</i>					
<i>T.S.V.</i> <i>ch</i>					
TOTALS					

YUKON OFFICE SUPPLIES

MOORE SPEEDPLY - 3 - MOORE CLEANPRINT PATENTED 1963-1966 ©

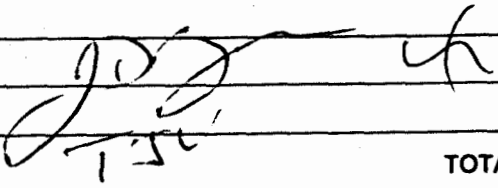
DRIVER'S TIME SHEET

DRIVER'S NAME <i>Will Du Cort</i>	UNIT NO.	DATE <i>Aug 9</i>	REF. NO.		
			MILES	HOURS	FUEL
<i>IBEX Const</i>					
<i>Machine hrs. worked</i>				<i>10 1/2</i>	
<i>Machine 225</i>					
<i>T.S.V.</i> <i>ch</i>					
TOTALS					

ON OFFICE SUPPLIES

MOORE SPEEDPLY - 3 - MOORE CLEANPRINT PATENTED 1963-1966 ©

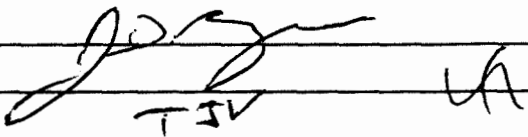
DRIVER'S TIME SHEET

DRIVER'S NAME	UNIT NO.	DATE	REF. NO.		
Willy De la Torre		Aug 12/81			
			MILES	HOURS	FUEL
IBEX Const					
machine hrs worked				11	
Backhane 225					
					
TOTALS					

UN OFFICE SUPPLIES

MOORE SPEEDPLY - 2 - MOORE CLEARPRINT PATENTED 1963-1966 ©

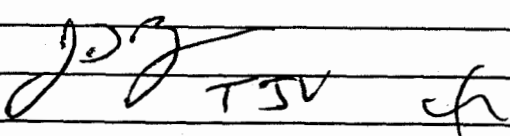
DRIVER'S TIME SHEET

DRIVER'S NAME	UNIT NO.	DATE	REF. NO.		
Willy De la Torre		Aug 13/81			
			MILES	HOURS	FUEL
IBEX Const					
machine hrs worked				9 1/2	
Backhane 225					
					
TOTALS					

UN OFFICE SUPPLIES

MOORE SPEEDPLY - 2 - MOORE CLEARPRINT PATENTED 1963-1966 ©

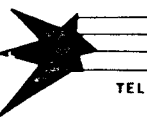
DRIVER'S TIME SHEET

DRIVER'S NAME	UNIT NO.	DATE	REF. NO.		
Willy De la Torre		Aug 11/81			
			MILES	HOURS	FUEL
IBEX Const					
machine hrs worked				10	
backhane 225					
					
TOTALS					

UN OFFICE SUPPLIES

MOORE SPEEDPLY - 2 - MOORE CLEARPRINT PATENTED 1963-1966 ©

T
N
T



TRANS NORTH TURBO AIR LTD.
BOX 4338, WHITEHORSE, YUKON T1A 3T6

TELEPHONE (403) 668-2177 • TELEX 036 8 290

ACCOUNT NUMBER	1116
54244	
INVOICE DATE	118/08/81
A/C TYPE	47B2 FCRN
AIRCRAFT REGISTRATION C	
FLIGHT DATE	09/08/81
PURCHASE ORDER NO.	

ARCHER CATHER
CHARTERER

TJV

BILLING ADDRESS

FUEL & OIL-X	TNTA FUEL USED	HRS.-GALS.	FROM
TNTA CUST.	✓		

FROM	MILES	HOURS	ZONE	REMARKS - NO. OF PASS. - FREIGHT LBS.
CLINTON CK				
TO LOCAL		3.1		Tartzhart

SUB	G.L.	AMOUNT
845	5020	713.00

3.1	230.00	713.00
@		
@		
@		

TERMS: NET 30 DAYS
1.75% INTEREST PER MONTH (21% PER ANNUM)
WILL BE CHARGED ON ALL OUTSTANDING AMOUNTS OVER 30 DAYS.

X.S. [Signature]
CHARTERER'S SIGNATURE

RRU [Signature]
INITIALS PILOT'S NAME

ENGINEER'S NAME

RGM BOB MOONEY
FLIGHT ATTENDANT

WAITING TIME	@	/HR.
FUEL:	@	/GAL.
FUEL:	@	/GAL.
MEALS & LODGING		
OTHER		
OTHER		

TOTAL \$ 713.00

FLIGHT REPORT INVOICE



TRANS NORTH TURBO AIR LTD.
 BOX 4338, WHITEHORSE, YUKON T1A 3T6

TELEPHONE (403)668-2177 • TELEX 036 8 290

ARCHER CATARO
 CHARTERER
TJV

BILLING ADDRESS

ACCOUNT NUMBER	1116
54245	
INVOICE DATE	18/08/81
A/C TYPE	4752
AIRCRAFT REGISTRATION	13CRH
FLIGHT DATE	10/08/81
PURCHASE ORDER NO.	

FUEL #	OIL-X	TNTA FUEL USED	HRS.-GALS.	FROM
TNTA	CUST.			

FROM	MILES	HOURS	ZONE	REMARKS - NO. OF PASS - FREIGHT LBS.
CLINTON CK				
TO LOCAL		4.8		Tort short - 4.1 REG - 0.7

SUB	S.L.	AMOUNT
845	50120	1104.00

4.8 @ 230.00	1104.00
@	
@	
@	

TERMS: NET 30 DAYS
 1.75% INTEREST PER MONTH (21% PER ANNUM)
 WILL BE CHARGED ON ALL OUTSTANDING AMOUNTS OVER 30 DAYS.

XSSA
 CHARTERER'S SIGNATURE

RRC
 INITIALS

PILOT'S SIGNATURE

CO-PILOT'S NAME

ENGINEER'S NAME

RGM DOB MANN
 FLIGHT ATTENDANT

WAITING TIME	@	/HR.
FUEL:	@	/GAL.
FUEL:	@	/GAL.
MEALS & LODGING		
OTHER		
OTHER		

TOTAL \$ 1104.00

FLIGHT REPORT INVOICE



TRANS NORTH TURBO AIR LTD.
 BOX 4338, WHITEHORSE, YUKON Y1A 3T6

TELEPHONE (403)668-2177 • TELEX 036 8-290

ACCOUNT NUMBER	1116
54250	
INVOICE DATE	18/08/81
A/C TYPE	47B2FCRH
FLIGHT DATE	13/08/81
PURCHASE ORDER NO.	

ARCHER CASIRO
 CHARTERER

TJV
 BILLING ADDRESS

FUEL & OIL-X	TNTA FUEL USED	HRS.-GALS.	FROM
TNTA	CUST		
	✓		

FROM	MILES	HOURS	ZONE	REMARKS - NO. OF PASS - FREIGHT LBS.
CLINTON CK				
TO LOCAL		5.2		TURK-1.9 TARTHART-1.4 REG-1.9

SUB	G.L.	AMOUNT
845	5020	119600

5.2 • 230.00 1196.00

TERMS: NET 30 DAYS
 1.75% INTEREST PER MONTH (21% PER ANNUM)
 WILL BE CHARGED ON ALL OUTSTANDING
 AMOUNTS OVER 30 DAYS.

X *JSA*
 CHARTERER'S SIGNATURE

RRC *[Signature]*
 COPILOT'S NAME

ENGINEER'S NAME

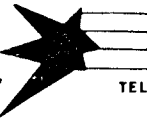
RGJM BOB MOONEY
 FLIGHT ATTENDANT

WAITING TIME	@	/HR.
FUEL:	@	/GAL.
FUEL:	@	/GAL.
MEALS & LODGING		
OTHER		
OTHER		

RA TOTAL \$ 1196.00

**FLIGHT REPORT
 INVOICE**

T
N
T



TRANS NORTH TURBO AIR LTD.
BOX 4338, WHITEHORSE, YUKON Y1A 3T6

TELEPHONE (403)668-2177 • TELEX 036 0 290

ACCOUNT NUMBER	1116
51151	
INVOICE DATE	68/018/81
A/C TYPE	47732
AIRCRAFT REGISTRATION C	1-CR14
FLIGHT DATE	140581
PURCHASE ORDER NO.	

CHARTERER ARCHER CATRAL

BILLING ADDRESS TTU

FUEL #001L-X	TNTA FUEL USED	HRS.-GALS.	FROM
TNTA CUST.			

FROM	MILES	HOURS	ZONE	REMARKS - NO. OF PASS - FREIGHT LBS.
CLINTON CK		2.5		
TO				Portzhat

SUB	E.L.	AMOUNT
845	51020	575.00

2.5	@	230.00	575.00
	@		
	@		
	@		

TERMS: NET 30 DAYS
1.75% INTEREST PER MONTH (21% PER ANNUM)
WILL BE CHARGED ON ALL OUTSTANDING AMOUNTS OVER 30 DAYS.

XSS
CHARTERER'S SIGNATURE

RRR
INITIALS

4-62
PILOT'S SIGNATURE

CO-PILOT'S NAME

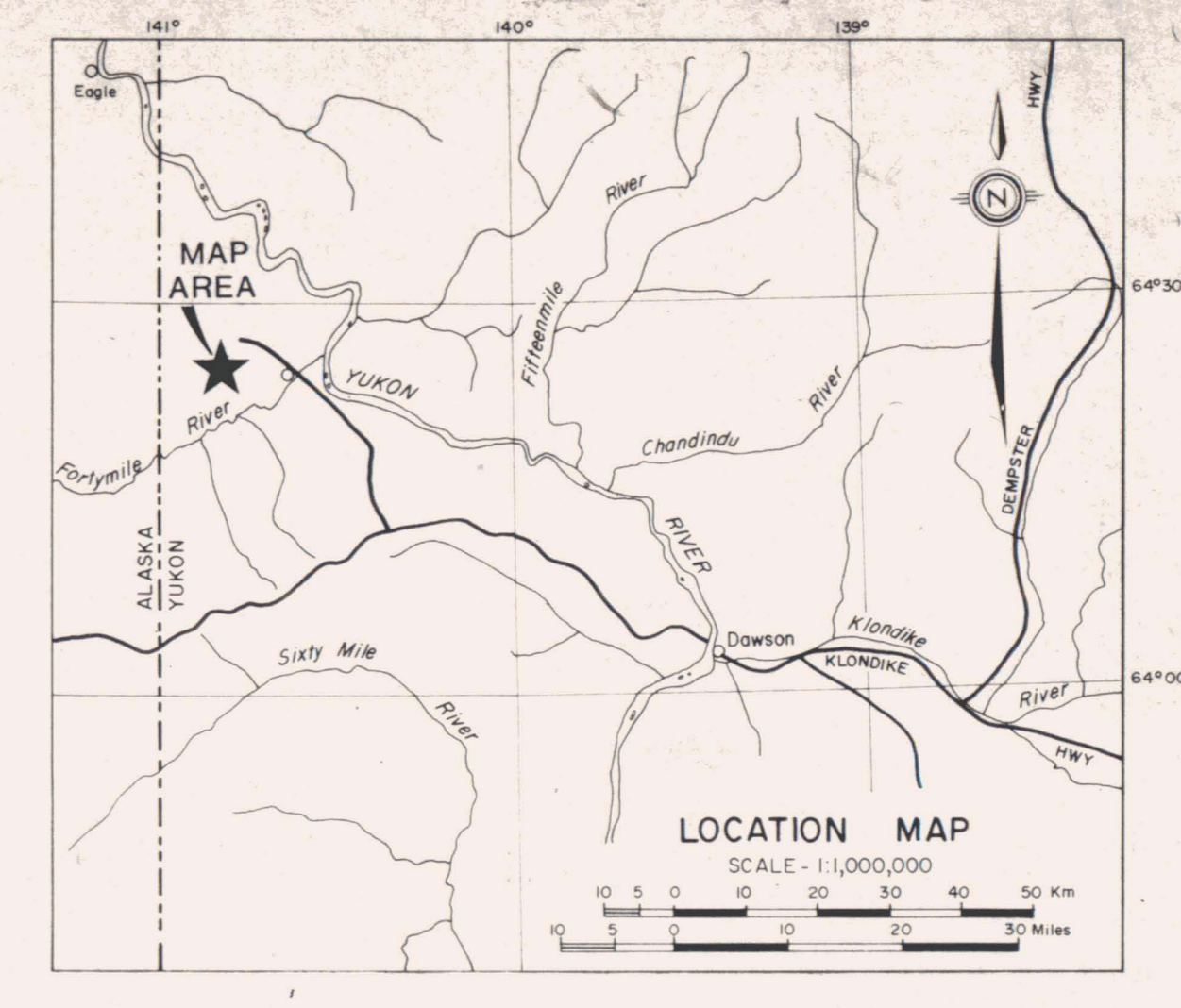
ENGINEER'S NAME

RRR BOB MCNETY
FLIGHT ATTENDANT

WAITING TIME	@	/HR.
FUEL:	@	/GAL.
FUEL:	@	/GAL.
MEALS & LODGING		
OTHER		
OTHER		

TOTAL \$ 575.00

FLIGHT REPORT INVOICE



LEGEND

CARBONIFEROUS TO PERMIAN

- CPub Dark green serpentinite and quartz carbonate rocks
- CPchs Dark green chlorite schist
- CPdi Dark weathering diorite, metadiorite, gabbro

ORDOVICIAN TO DEVONIAN

- OSD Indifferentiated grey quartz mica schist, chlorite schist, carbonaceous mudstone, phyllite, fine sandstone
- OSDs Carbonaceous mudstone, orange brown sillstone, pale green surfaceous phyllite, black weathering fine sandstone
- OSDqm Grey and white quartz muscovite schist
- OSDgs Grey to black graphite schist
- OSDl Limestone, dolomite, marble
- OSDbs Biotite schist

Geological contact (defined, assumed)

Anomalous zone boundary (defined, assumed)

- 7d Soil sample location and point value
- x 7d Silt sample location and point value

100N 70E Grid coordinates

- ⊙ Bulldozer trail
- ⊙ Excavator pit

NOTE: Chrysotile content of samples measured with Fine Particle Separator at GEOTECH SERVICES INCORPORATED, Kamloops, B.C.

Fig. 3
 ARCHER PARTNERS ASSOCIATES LTD.
EXCAVATOR PITS,
GEOLOGY AND FIBRE DISPERSION SURVEY
 TARTZART CLAIMS
 TESLIN JOINT VENTURE 091401

SCALE = 1:20,000