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REPORT ON

GEOCHEMICAL SAMPLING AND GEOLOGICAL MAPPING

Comanche 1-52 Mineral Claims

Latitude 62°36' Longitude 137°19'

Whitehorse Mining Division, Yukon

NTS 115I/11

Yukon Gold Placer Ltd. and Pinnacle Mines Ltd.

10 Aug., 1973

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of $ 7020.00

D. B. Craig
Resident Geologist or
~~Resident Mining Engineer~~

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

Commissioner of Yukon Territory

Alan R. Archer

Consulting Geological Engineer

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INTRODUCTION

The exploration program on the Comanche 1 to 52 claims described in this report was done under contract by Archer, Cathro & Associates Ltd. for Yukon Gold Placers Ltd. and Pinnacle Mines Ltd. from July 25 to August 3, 1973. Field men were J. Rance and D. Eaton with supervision provided by the writer, A.R. Archer.

The objective of the program was (1) to determine the exact location of the Comanche claims relative to adjoining, previously staked claims (2) to explore the claims by grid soil sampling and geological mapping for copper mineralization similar to that found two miles east on property held by Silver Standard Mines Ltd. and the United Keno Exploration syndicate and (3) to examine bulldozer trenches cut in late 1972.

PROPERTY, LOCATION AND ACCESS

The property consists of 52 mineral claims recorded at Whitehorse, Yukon Territory, as follows-

Claim Name	Grant Numbers	Expiry Date
Comanche 1-6	Y62268-Y62273	8 Sept, 1973
Comanche 7-28	Y62274-Y62295	11 Sept, 1973
Comanche 29-36	Y63506-Y65313	27 Sept, 1973
Comanche 37-52	Y63514-Y63529	28 Sept, 1973

Figure 1 illustrates the relative position of the Comanche claims as located in the field. They were found to be well staked with the lines easy to locate and follow. There is a minor overlap at the northeastern boundary with the previously staked Minto and Def claims but it is not substantially different from that shown on claim sheet 115I/11. Accessibility is illustrated in the insert in the upper left hand corner of

Figure 1. Minto, the nearest road point on the Klondike Highway, is about 150 road miles from Whitehorse.

GEOLOGY

Figure 2 illustrates areas where outcrop, or "near outcrop" irregular fragments of bedrock float, were noted. There is no outcrop on the property that is sufficiently undisturbed by frost action to enable measurement of strike and dip. Most of the bedrock float is found near the higher ground on the south-eastern side of the property. The predominant rock type in this area is a Jurassic or later granitic intrusion very similar to that found on the United Keno and Silver Standard properties. It is a medium to coarse grained granodiorite with a high (up to 20 per cent) biotite content. Foliation, caused by alignment of the biotite, is strongly developed. Aplite dykes and simple pegmatite dykes with a high K-feldspar content are common. Float on the northeast side of the property suggests that the biotite granodiorite grades into a less foliated hornblende biotite granodiorite in that direction. No surface evidence of mineralization was noted although very minor limonitic staining was occasionally found in the biotite granodiorite.

The location of seven bulldozer trenches cut for assessment purposes in 1972 are shown on Figure 2. These were examined and a short description of each follows-

Trench 1 - Four hundred feet long varying from one to four feet in depth. Rock consists of highly foliated biotite granodiorite cut by narrow aplite and pegmatite dykes.

There is considerable fine decomposed rock (possibly gouge?) in the trench bottom suggesting that either bedrock has not been reached or there is faulting.

Trench 2 - Five hundred and ten feet long varying from one to five feet deep. Rocks consist of highly foliated biotite granodiorite. Foliation trends about N40°W and dips steeply northeast. Malachite staining is exposed over a 10 foot wide zone 400 feet from the north end of the trench and again in two narrower zones at 320 and 295 feet. The grade of these zones is estimated to be less than 0.2% copper. Moderate limonite staining surrounding the malachite suggests strong leaching. There is no evidence of mineralization in surface float near the trench indicating that surface leaching has been total. This trench is the only area on the property where foliation attitude can be accurately determined.

Trench 3 - Five hundred feet long and up to six feet deep. Most of the trench appears to be along a fault with the main exposure being highly weathered, altered, yellow-green to brown clay gouge. Strongly weathered foliated biotite granodiorite is seen at the northernmost end of the trench.

Trench 4 - Four hundred feet long and up to three feet deep. Rock is well foliated biotite granodiorite but true bedrock has probably not been reached.

Trench 5 - Seven hundred feet long and up to four feet deep in a weakly foliated biotite granodiorite with minor pegmatite.

Trench 6 - Four hundred feet long and up to four feet deep in gravel that appears glacio-fluvial in origin.

Trench 7 - Five hundred feet long and up to three feet deep in dense green andesite of the Recent or Tertiary Selkirk Series volcanics.

The volcanics found in Trench 7 indicate that a portion of the southwestern side of the property is capped by Selkirk Series volcanics which are younger than the mineralization and intrusive rocks. The capping is unlikely to exceed 500 feet in thickness.

There is evidence (substantiated by Trench 6) that the westerly flowing stream crossing the property and the area south of the stream has an overburden cover of glacio-fluvial till. This area is near the upper limit of Pleistocene glaciation and the cover will be shallow. Topography on the property is generally subdued. Drainages are usually swampy with minor muskeg. Vegetation in these areas consists of scrub spruce tangles, thick moss, dense buckbrush and niggerheads. The dryer ridges are covered by more open stands of mixed spruce and poplar.

GEOCHEMICAL SAMPLING

General

The mineralized areas to the east of the Comanche claims consist of strongly foliated zones, within the Jurassic or later intrusion, that vary from a few feet to several hundred feet in width. They usually strike northwest and occur in sub-parallel groups dipping to the east. Mineralization consists

of bornite, chalcopyrite, chalcocite and traces of pyrite and molybdenite. Weathering results in conversion of copper sulfide to copper oxide with little change in grade. Mobilization of copper in ground water is minimal and stream sediment sampling is ineffective unless the stream happens to cut across a zone. Soil sampling, however, has proven to be a very effective preliminary way of detecting mineralized zones through deep residual overburden, even in areas with an additional light cover of glacial till. A soil sample grid spacing of 400 feet by 400 feet on the known properties would have located all areas of interest. The best indicator metal is copper although weak associated silver and molybdenum values are occasionally obtained. Copper background in the district ranges from 10 parts per million (ppm) to 30 ppm, sometimes rising to 40 ppm. Threshold is about 40 ppm and values in excess of 100 ppm are usually obtained over or near mineralized areas, providing a strong contrast. Swampy or organic rich areas have a tendency to act as copper collectors and occasionally return values 10 to 30 ppm higher than regional background.

Technique

The corner posts of the Comanche 27-30 claims was chosen as zero east. A tie line was chained (at right angles to the claim line) northwest and southeast from this point to establish zero points on the two remaining claim lines. The Comanche

claim lines were then designated Baselines A to C respectively from a north to south direction. The baselines were chained east and west from their zero points and three foot lath pickets established at 400 foot intervals. Each lath was marked with the appropriate co-ordinate in multiples of 100 feet. For example, a lath on Baseline B located 4000 feet east of the zero tie line would be marked BL B, 40E. The field position of the Comanche claim posts was determined while chaining the baselines and each baseline was continued east to locate the position of the adjoining Silver Standard claims. Additional tie lines were established at 4000 East and 4000 West to determine the exact degree of convergence or divergence of the claim lines. The tie lines were continued north to locate the position of the adjoining Wain claims.

Soil samples were taken at 400 foot intervals by pace and compass between the 400 foot stations on the baselines. Soil sample locations were marked with an 18 inch lath picket printed with the appropriate co-ordinate relative to the baseline being worked from . For example, a soil sample picket 800 feet south of Baseline C on cross line 1200 East would be marked C12E+ 8S. The soil sample bag number was printed on the reverse side of each picket. Figure 3 shows the soil sample bag number for each point and this map would provide the simplest method of relocating the relative position of any soil sample picket in the field. The soil sample points on Figure 3 and 4 are shown

as best possible in their true location. A pace and compass traverse that wandered slightly between baselines is drawn in a straight line from the starting position to the actual finishing position. The tie lines, baselines and soil sample lines were well marked with orange glow flagging.

Soil samples were obtained by digging to a B or B plus C horizon with a mattock. Samples were collected in pre-numbered kraft envelopes and air expressed to Chemex Labs Ltd., North Vancouver, B.C. Each samples was assayed for copper, molybdenum and silver by atomic absorption spectrometry of a nitric-perchloric extraction of a minus 80 mesh fraction. Sample splits will remain in storage at Chemex for five years in the event that analyses for additional elements are required in the future. In several areas, sample pits could not be dug to a B horizon due to a combination of permafrost and thick peat or black muck in swampy areas. Samples taken from such areas are marked PS(meaning poor sample). A total of 759 soil samples were taken out of a theoretical maximum of 728 for a 400 by 400 foot spacing on 52 claims.

Interpretation

Other than swampy areas in or near the main creek crossing the property, soil sample conditions were good. Most of the samples were obtained from a B horizon that varied from a grey to light brown colour. Samples near areas of bedrock float were usually obtained from a B plus C horizon. A typical soil profile is several inches of moss and/or organic debris underlain by one to twelve inches of peaty material above the B horizon.

There was no evidence of the recent volcanic ash that occurs further south in the district.

Figure 4 illustrates soil sample analyses in parts per million. Only molybdenum and silver values that exceed 1 ppm molybdenum and 0.5 ppm silver are plotted. These are shown in brackets beneath the appropriate sample point. All copper assays are plotted and those above the threshold value of 40 ppm are contoured. The best area of geochemical response is on the northeast side of the property where four adjoining samples returned anomalous values between 89 and 124 ppm copper with supporting above threshold response in silver. This is the only portion of the property where two or more adjoining samples have above detection values in silver. Except for a few single point erratics, there are no samples exceeding 1.0 ppm molybdenum. Four areas of three or more adjoining above threshold values in copper are found to the north and west of the anomaly. The portion of the property to the south of the west flowing creek and immediately along the north side of the creek exhibits higher than average copper background for the district. This probably represents contamination in the glacio-fluvial overburden which originated from the southeast on the Silver Standard Minto claims. Seven areas with three or more adjoining sample points returning slightly above threshold copper are found on this portion of the property. Other than one erratic anomalous value and one slightly above threshold value, there is no copper geochemical response in the area of Trench 2 where minor zones of malachite were exposed.

CONCLUSIONS AND RECOMMENDATIONS

The area of anomalous copper soil response at the northeast side of the property and the four areas of above threshold copper values to the north and west of this point each warrant at least one bulldozer trench. A bulldozer trench should also be cut across the largest area of above threshold copper response south of the creek to confirm that it is, in fact, caused by contamination in glacio-fluvial overburden. Each trench must be cut deep enough to expose undisturbed bedrock in order that foliation attitude, which is the most important mineral control in the district, can be accurately measured. The total cost of trenching, including supervision, is estimated at $10,000.

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES LTD.

Association of Professional Engineers of the Yukon Territory
A.R. ARCHER
GEOLOGICAL
ENGINEER

A.R. Archer, B.A.Sc., P.Eng.

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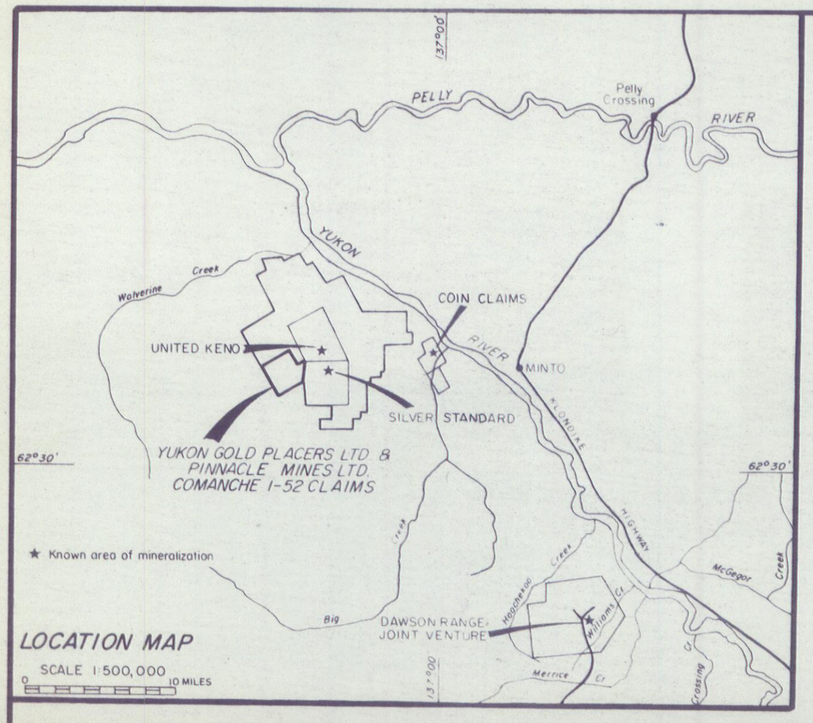

NAVAJHO CLAIMS

WAIN CLAIMS

COMANCHE 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52

UNITED KENO EXPLORATIONS
DEF CLAIMS

DEF 41 / DEF 42 / DEF 39 / DEF 40
DEF 39 / DEF 40 / DEF 38 / DEF 36
DEF 38 / DEF 36 / DEF 37 / DEF 35
MINTO 78 / MINTO 77 / MINTO 80 / MINTO 79
DEF 37 / DEF 35 / DEF 34 / DEF 32
MINTO 80 / MINTO 79 / MINTO 82 / MINTO 81
DEF 34 / DEF 32 / DEF 33 / DEF 31
MINTO 82 / MINTO 81 / MINTO 84 / MINTO 83
DEF 33 / DEF 31
MINTO 84 / MINTO 83 / MINTO 86 / MINTO 85

SILVER STANDARD MINES LTD.
MINTO CLAIMS

MINTO 86 / MINTO 85 / MINTO 88 / MINTO 87

LEGEND

□ CLAIM POST

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ENGINEER

FIG. 1
ARCHER, CATHRO & ASSOCIATES LTD.

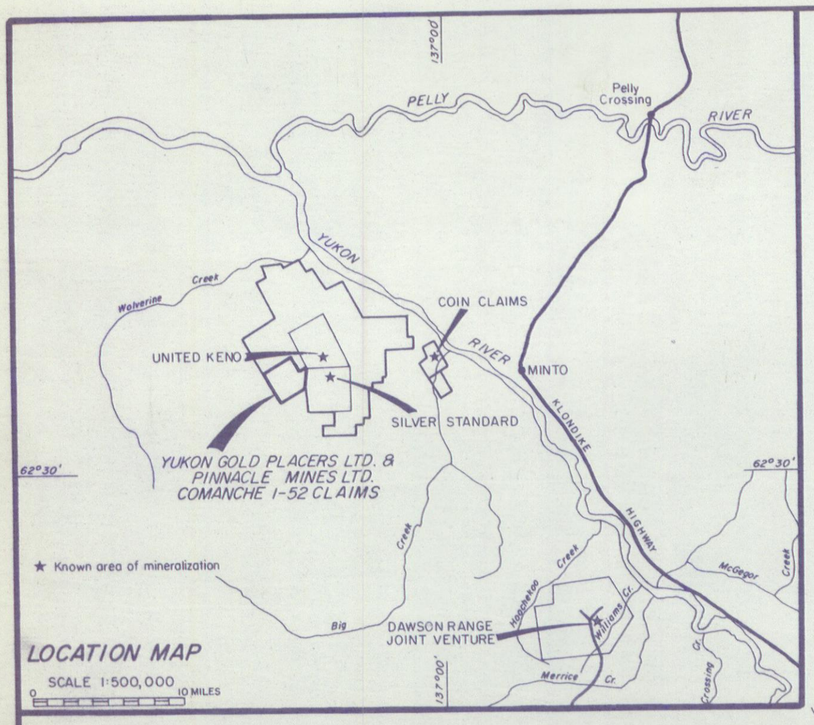
CLAIM LOCATION

YUKON GOLD PLACERS LTD. & PINNACLE MINES LTD.
COMANCHE 1-52 CLAIMS
MINTO AREA, YUKON

SCALE IN FEET
1000 0 1000 2000 3000

060157

TO ACCOMPANY A REPORT BY A ARCHER DATED AUG 10, 1973



NAVAJHO CLAIMS

WAIN CLAIMS

UNITED KENO EXPLORATIONS
DEF CLAIMS

SILVER STANDARD MINES LTD.
MINTO CLAIMS

BASELINE 'A'
BASELINE 'B'
BASELINE 'C'

TIELINE 4000 EAST
TIELINE 4000 WEST
TIELINE ZZZ0

Hornblende, biotite granodiorite - weak foliation

Weakly foliated biotite, hornblende granodiorite

Fine grained aplitic granodiorite

Minor float moderately foliated biotite granodiorite

Abundant float strongly foliated biotite granodiorite

Minor malachite in trench

Minor float mafic deficient granodiorite

Weakly foliated biotite, hornblende granodiorite

Post intrusive volcanics

DEF 41 DEF 42 DEF 39 DEF 40
DEF 39 DEF 40 DEF 38 DEF 36
DEF 38 DEF 36 DEF 37 DEF 35
DEF 37 DEF 35 DEF 34 DEF 32
DEF 34 DEF 32 DEF 33 DEF 31
DEF 33 DEF 31

MINTO 78 MINTO 77 MINTO 80 MINTO 79
MINTO 80 MINTO 79 MINTO 82 MINTO 81
MINTO 82 MINTO 81 MINTO 84 MINTO 83
MINTO 84 MINTO 83 MINTO 86 MINTO 85
MINTO 86 MINTO 85 MINTO 88 MINTO 87

LEGEND

- CLAIM POST
- TRENCH
- AREAS OF BEDROCK FLOAT

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Aug 10/73

FIG. 2
ARCHER, CATHRO & ASSOCIATES LTD.

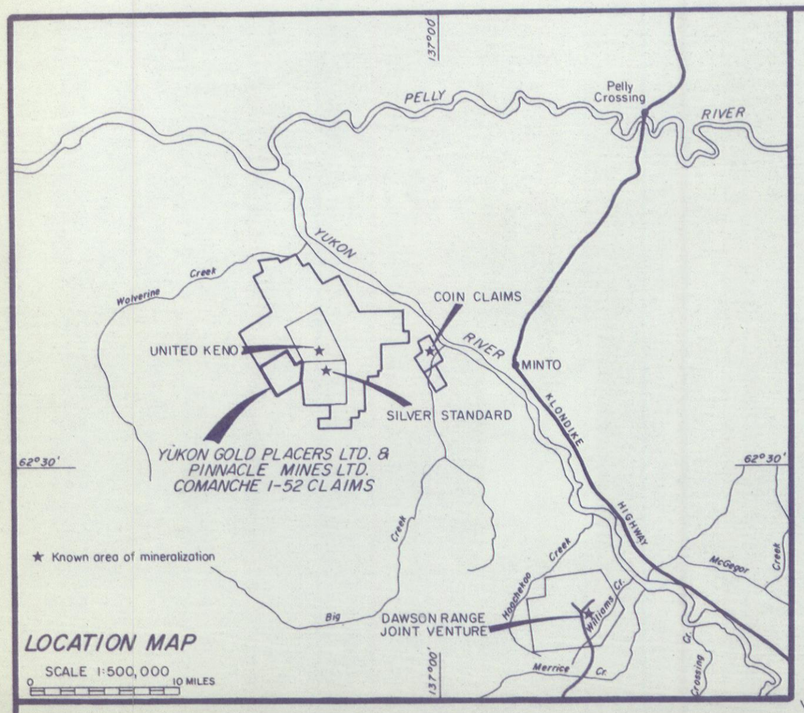
PROPERTY GEOLOGY

YUKON GOLD PLACERS LTD. & PINNACLE MINES LTD.
COMANCHE 1-52 CLAIMS
MINTO AREA, YUKON

SCALE IN FEET
1000 0 1000 2000 3000

060157

TO ACCOMPANY A REPORT BY A ARCHER DATED AUG. 10, 1973



NAVAJHO CLAIMS

WAIN CLAIMS

UNITED KENO EXPLORATIONS DEF CLAIMS

SILVER STANDARD MINES LTD. MINTO CLAIMS

BASELINE 'A'

BASELINE 'B'

BASELINE 'C'

TIELINE 4000 EAST

TIELINE 4000 WEST

DEF 41 | DEF 42 / DEF 39 | DEF 40

DEF 39 | DEF 40 / DEF 38 | DEF 36

DEF 38 | DEF 36 / DEF 37 | DEF 35

DEF 37 | DEF 35 / DEF 34 | DEF 32

DEF 34 | DEF 32 / DEF 33 | DEF 31

MINTO 78 | MINTO 77 / MINTO 80 | MINTO 79

MINTO 80 | MINTO 79 / MINTO 82 | MINTO 81

MINTO 82 | MINTO 81 / MINTO 84 | MINTO 83

MINTO 84 | MINTO 83 / MINTO 86 | MINTO 85

MINTO 86 | MINTO 85 / MINTO 88 | MINTO 87

LEGEND

- □ CLAIM POST
- — TRENCH
- (PS) POOR SAMPLE
- •754 ALL SAMPLE NUMBERS PREFIXED E

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ENGINEER

FIG. 3

ARCHER, CATHRO & ASSOCIATES LTD

SOIL SAMPLE LOCATIONS

YUKON GOLD PLACERS LTD. & PINNACLE MINES LTD.

COMANCHE 1-52 CLAIMS

MINTO AREA, YUKON

SCALE IN FEET

1000 0 1000 2000 3000

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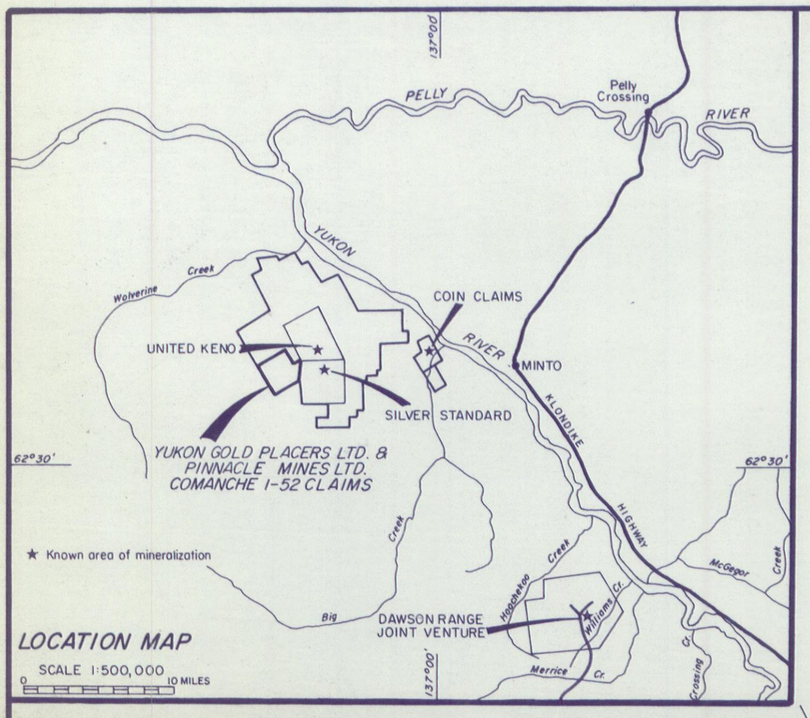
TO ACCOMPANY A REPORT BY A ARCHER DATED AUG 10, 1973



NAVAJHO CLAIMS

WAIN CLAIMS

UNITED KENO EXPLORATIONS
DEF CLAIMS

SILVER STANDARD MINES LTD.
MINTO CLAIMS

BASELINE 'A'
BASELINE 'B'
BASELINE 'C'

TIELINE 4000 EAST
TIELINE 4000 WEST

LEGEND

30 — Sample value for copper in parts-per-million (ppm)

(1,2.5) — Sample value of molybdenum, silver in ppm. points with assays not shown assayed less than 2 ppm. molybdenum and/or less than 1 ppm silver.

70 — Area of copper values above threshold.

Samples assayed by Chemex Labs Ltd. North Van. analyses by atomic absorption spectrometry of a nitric-perchloric extraction.

LEGEND

□ CLAIM POST
— TRENCH

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FIG. 4

ARCHER, CATHRO & ASSOCIATES LTD.

COPPER, MOLYBDENUM & SILVER GEOCHEMISTRY

YUKON GOLD PLACERS LTD. & PINNACLE MINES LTD.

COMANCHE 1-52 CLAIMS

MINTO AREA, YUKON

SCALE IN FEET

1000 0 1000 2000 3000

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