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GEOCHEMICAL AND GEOLOGICAL REPORT

NAT JOINT VENTURE

NOMEN DUBIUM 1-24 CLAIMS

NTS 105D/3-4



Latitude 60°12' north, Longitude 135°30' west

Work done 17 to 18 July, 1980

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090740

January 1981



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 \$ 1981.00

[Handwritten Signature]

Resident Geologist or
Resident Mining Engineer

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

[Handwritten Signature]
B. F. BAXTER
Supervising Mining Recorder

[Handwritten Signature]
Commissioner of Yukon Territory

015000

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Figure MS-1 Suggested Caldera Complexes following page 4

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Figure N10A Mt. Skukum Area: Geochemistry; scale 1:10,000

Figure N10B Mt. Skukum Area: Geology; scale 1:10,000

INTRODUCTION

NAT Joint Venture was formed by equal partners Chevron Canada Limited and Armco Mineral Exploration Ltd. to explore selected areas of Yukon for precious metals. The field crew was comprised of geological engineer E. Onasick and field assistant N. Ball; senior supervision was provided by A.R. Archer.

Reanalysis of 460 splits from samples previously collected in the vicinity of Mt. Skukum outlined a strong anomaly in gold, arsenic and lead, on open ground on the west flank of Mt. Skukum. The anomaly was staked on 11 July, 1980, as the Nomen Dubium 1 to 24 claims. During the following week (11 to 19 July) this property and other targets in the Wheaton River area were explored.

Results of geochemical sampling in the region are illustrated at 1:10,000 scale in the vicinity of the claims as Figure N10A. Geology around the claims is shown as Figure N10B. Report preparation was carried out in Vancouver during the period September to December, 1980.

PROPERTY, LOCATION AND ACCESS

The Nomen Dubium property consists of twenty-four contiguous claims, recorded in the Whitehorse Mining District as follows:

<u>Claim Name</u>	<u>Record Numbers</u>	<u>Expiry Date</u>
Nomen Dubium 1-24	YA50928-950	15 July, 1981

The Nomen Dubium claims are located on the west flank of Mt. Skukum at latitude 60°12' north and 135°30' west, straddling NTS claim sheets 105D/3 and D/4. The property lies about 65 kilometres southwest of Whitehorse. The Nomen Dubium claims

can be approached by a horse trail that follows the Watson River valley. Access to the property in 1980 was by Hughes 500C helicopter (supplied by Trans North Turbo Air Ltd. of Whitehorse), from a roadside camp on the Wheaton River 23 kilometres east.

PREVIOUS WORK

The Wheaton River district is well-known for vein occurrences of precious metals, sulphosalts and semi-metals (Sb, As, Bi). Four mineral occurrences described in the Archer, Cathro Northern Cordillera Mineral Inventory (NCMI) lie within the Mt. Skukum area of interest, and are plotted on Figure N10B.

The Charleston adit (NCMI 20), which lies just south of the Nomen Dubium claims, explored about 60 metres of a quartz vein containing pyrite, minor galena and malachite, and averaged 11.7 g/MT (0.34 oz/ton) Au across one metre. The property was discovered prior to 1907, and was explored by adits and trenches until 1954, when it was taken to lease. Yukon Antimony Corp. Ltd. tied the Bud claims on to the south in 1964, which were allowed to lapse.

Mineral occurrence NCMI 22, currently staked as the WH 1 to 8 claims, was originally staked prior to 1922 as Polar Chief, etc. claims. A 12 metre adit was driven in 1923, and trenching continued until 1929. A road was built in 1930-31 and another adit (35 metres) was driven in 1937. There has been little further work, but Yukon Antimony Corp. Ltd. built a bulldozer trail to the showing in 1965, and after staking in 1973 by El Paso Mining and Milling, the property reverted to prospector W. Kuhn. It has been optioned to E. Bergvinson of Vancouver in 1980.

Two veins 30m to 100 m apart cut granodiorite and an andesite roof pendant, and mineralization consists of galena, sphalerite, pyrite, stibnite and arsenopyrite in quartz, with the best samples assaying 13.0 g/MT(0.38 oz/ton) Au, 1249 g/MT (36.4 oz/ton) Ag and 1.02% Sb across 1.5 m.

New fringe staking to the west of the WH claims appeared in 1980 as the Mike 1 to 8 and Jon 1 to 6 groups, apparently to cover a Yukon Group roof pendant on andesite. NCMi occurrence 21 underlies these claims marking where the GSC reported stibnite prior to 1940. Canadian Superior Exploration Limited staked this ground in 1975, and explored with sampling and mapping before allowing the claims to lapse.

The fourth occurrence (NCMI 23) is a group of four Raca claims covering copper-silver mineralization associated with granitic breccia at the contact between granodiorite and volcanics.

PHYSIOGRAPHY AND GLACIATION

Topography near Mt. Skukum is typified by high relief, deeply incised, youthful, glacially-scoured valleys, and rugged glacially-sculpted alpine terrain. Elevations rise to 2000 m, with an average of 1200 m relief. South-facing slopes are smooth and moderately steep, terminating in sharp ridges whereas north slopes are characterized by closely-spaced cirques, some of which are occupied by glaciers.

Pléistocene glaciation reached elevations of some 2000 m in this region, covering all but the highest peaks. Deglaciation is recorded by U-shaped valleys, often filled with thick glacial deposits and lateral moraines, and by alpine moraines and terraces.

Soil development ranges from poor to almost non-existent. Post-glacial drainage has incised deep cuts into the plateau and these cuts and the valley walls

provide an excellent outcropping cross-section of geology. Most hillsides are covered in talus or felsenmeer however, making observations of outcrop difficult or impossible. Solifluction is rapid through a combination of frost action and fast spring run-off produced by a heavy snowfall. Snow conditions preclude exploration until about late June. Much of the area is unvegetated.

GEOLOGY AND MINERALIZATION

The Mt. Skukum area lies within the Coast Plutonic Complex, which is mainly comprised of mid-Cretaceous to Tertiary crystalline rocks. These cut and contain remnants of metamorphic rocks of the Yukon Group. Lower Tertiary pyroclastic and flow rocks of the Skukum Group unconformably overlie the Yukon Group and granitic rocks, and Tertiary rhyolite porphyry forms a ring dyke and other isolated bodies. The Skukum Group outcrops in two main areas. The more southerly area comprises the Eocene Bennett Lake Cauldron Complex (see GSC Bulletin 227), and the northerly group lies within the Mt. Skukum area of interest and may itself be a result of caldera formation.

Calderas are suggested by: the presence of Skukum Group rocks; the occurrence of rhyolite porphyry peripheral to them; roughly circular patterns suggested by drainage and topography, along with perpendicular drainages that could represent radial fracturing; and the proximity to the Bennett Lake complex. These features are illustrated on Figure MS1 (see following page).

The Yukon Group rocks (PPsbq and associated carbonate PPc) are the oldest in the region, probably of early Paleozoic age, and are predominantly quartzites and quartz-feldspar-mica schists and gneisses, distributed in a northwesterly-trending belt. Quartzites are light to dark grey, fine grained rocks that are laminated to thick bedded. Schists are dark to light silvery grey (rusty brown weathering)

quartz and muscovite rocks with minor chlorite, feldspar, magnetite, hematite and zircon; gneisses are generally light to dark grey, fine to medium grained quartz-feldspar-biotite rocks with accessory apatite, sphene, zircon and epidote. Internal structure and composition of the metamorphic rocks suggest that they were derived from quartz-rich sediments.

The Yukon Group is intruded by mid-Cretaceous(?) coarse grained equigranular biotite-hornblende granodiorite to quartz monzonite (Kgdm). A stock of Tertiary granodiorite or quartz monzonite (Tgd) occurs in the southwest corner of the Mt. Skukum area, and several smaller bodies occur northeast of Mt. Skukum. This rock differs from the Cretaceous granodiorite in its texture and content of inclusions.

Overlying these rocks with angular unconformity, the Skukum Group consists of two phases, including rhyolite and trachyte breccias, flows and tuffs (eTva) and andesite to basalt tuffs, flows and breccias (eTvb), although boundaries between the two are often difficult to distinguish. These volcanics are often cut by stocks, plugs and dykes of rusty-weathering quartz and feldspar porphyry (Trp) with an aphanitic rhyolite (rarely andesite) matrix, which forms the prominent ring dyke around the Bennett Lake Caldera. Lambert's bulletin (GSC:B227) describes all of these rocks in considerable detail.

Several gossans occur in the Mt. Skukum area. The most prominent derived from the normal weathering of the Trp unit, but others are pyritiferous. Gossanous-looking quartz-carbonate alteration was noted in one location. Breccia with fragments to 10cm occurs in isolated patches.

Mineralization other than pyrite was not seen in the Mt. Skukum area by NAT during the 1980 season. The crew did not visit known quartz veins or mineralized showings except for a brief visit to the Charleston adit, where a rock sample was collected for analysis.

GEOCHEMISTRY

Geochemical samples were collected in kraft paper bags from available patches of soil, at creeks and from outcrops and talus. These were dried and shipped to Chemex Labs in North Vancouver, where they were screened to -35 mesh, pulverized, re-screened to -80 mesh, and analyzed for gold ("combo", fire assay followed by AA or neutron activation analysis), silver (nitric-perchloric extraction followed by AA) and arsenic (hydride vapour technique).

Regional results of pre-season reanalyses of former sampling are depicted as Figure N10A, which includes new sampling by the NAT crew. A total of 194 samples were collected in the Mt. Skukum area in 1980, out of which 64 were collected on the Nomen Dubium claims.

Gold response is widespread and erratic. Five soil samples assayed in excess of 80 ppb Au to a maximum of 226 ppb, and nine silt samples returned values in excess of 30 ppb Au to a maximum of 132 ppb. No rock specimens returned anomalous gold assays. Arsenic geochemistry is more uniformly anomalous, with thirty-five soil and silt samples returning values in excess of 100 ppm As and two in excess of 500 ppm As. Only a single rock specimen was anomalous in arsenic (110 ppm As). Silver response is weak and also erratic; three samples exceeded 2 ppm Ag, a soil (3.8 ppm), a rock (5.2 ppm) and a silt (2.0 ppm). Gold, silver and arsenic anomalies extend beyond the edge of the Nomen Dubium claims, particularly to the north and south. Silts returning 104 ppb, 120 ppb and 129 ppb Au are found near the claims.

A rock specimen from a gossan northeast of the claims returned an assay of 345 ppb Au and 2 ppm Ag, in the vicinity of small Tgd (?) intrusions. A specimen of quartz-carbonate altered rock at this location assayed 15 ppb Au and 395 ppb As.

Several soil and rock samples from a gossan about 2 km north of the Nomen Dubium claims have returned anomalous gold and arsenic assays to 179 ppb Au and in excess of 500 ppm As respectively.

DISCUSSION AND RECOMMENDATIONS

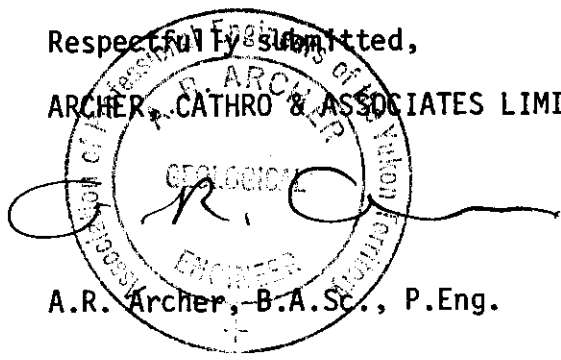
There is no obvious correlation between lithology and geochemical anomalies. At the Nomen Dubium claims, the strongest anomalies are in soil, not rock, and the presence of felsenmeer and talus obscures their sources. Gossanous outcroppings of feldspar porphyry are not themselves anomalous, but their presence may be related to rock dilation that allowed the introduction of mineralized fluids. Limy sections of the Yukon Group may have contributed to the precipitation of precious metals.

The source of the metals may have originated in the quartz-rich precursor of the Yukon Group, or the Skukum Group volcanics. Remobilization of mineralization may have occurred during either the Cretaceous or Eocene orogenies and may have been associated with one or more calderas postulated at Mt. Skukum.

Precious metals are known to be associated with quartz veins on the WH claims, and unless sufficient quantities of mineralized quartz are found, the potential for larger tonnage, low grade gold or silver deposits is limited and a low tonnage, high grade model may be more appropriate. Further work would be necessary only if good rock assays are obtained.

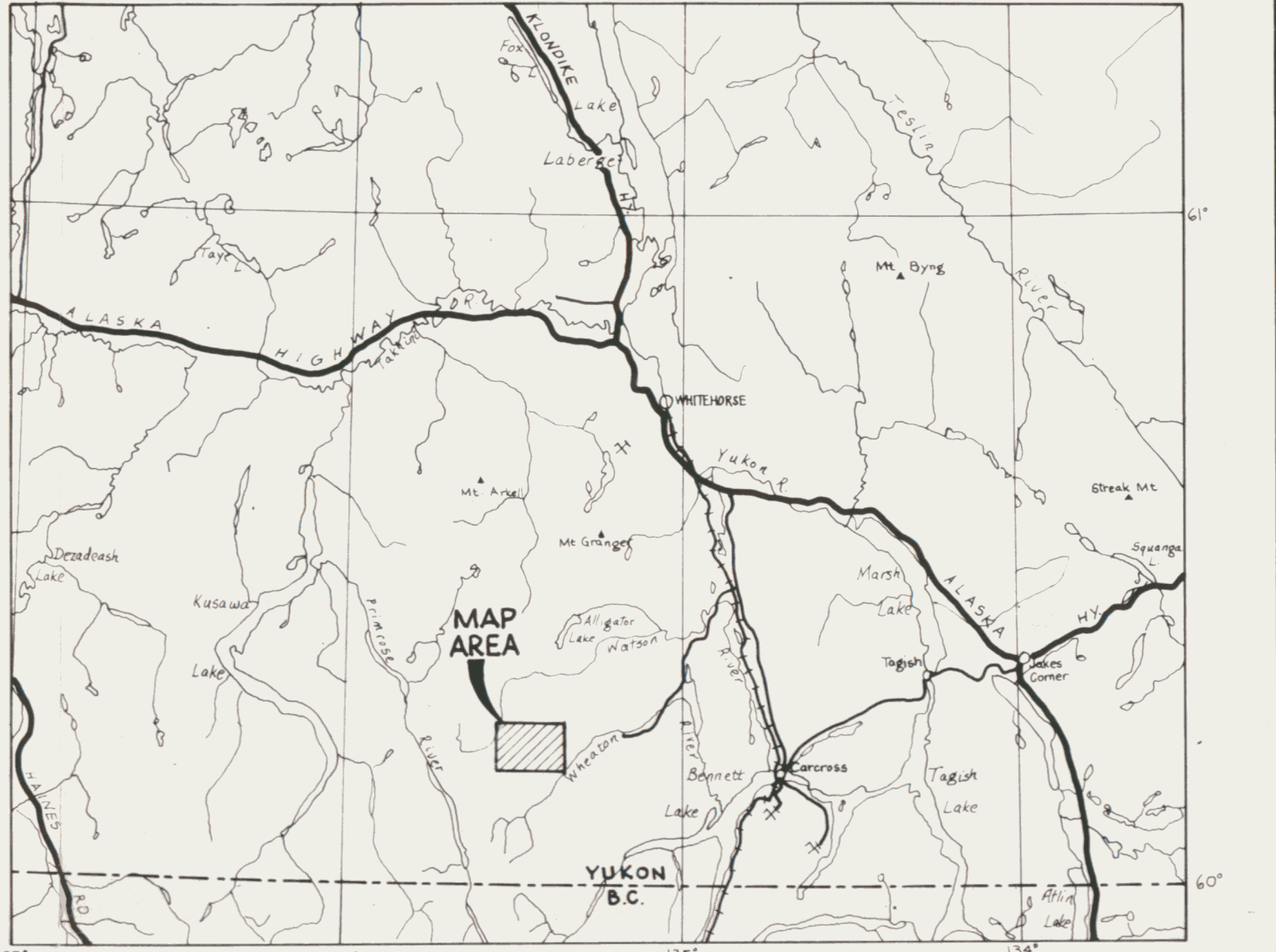
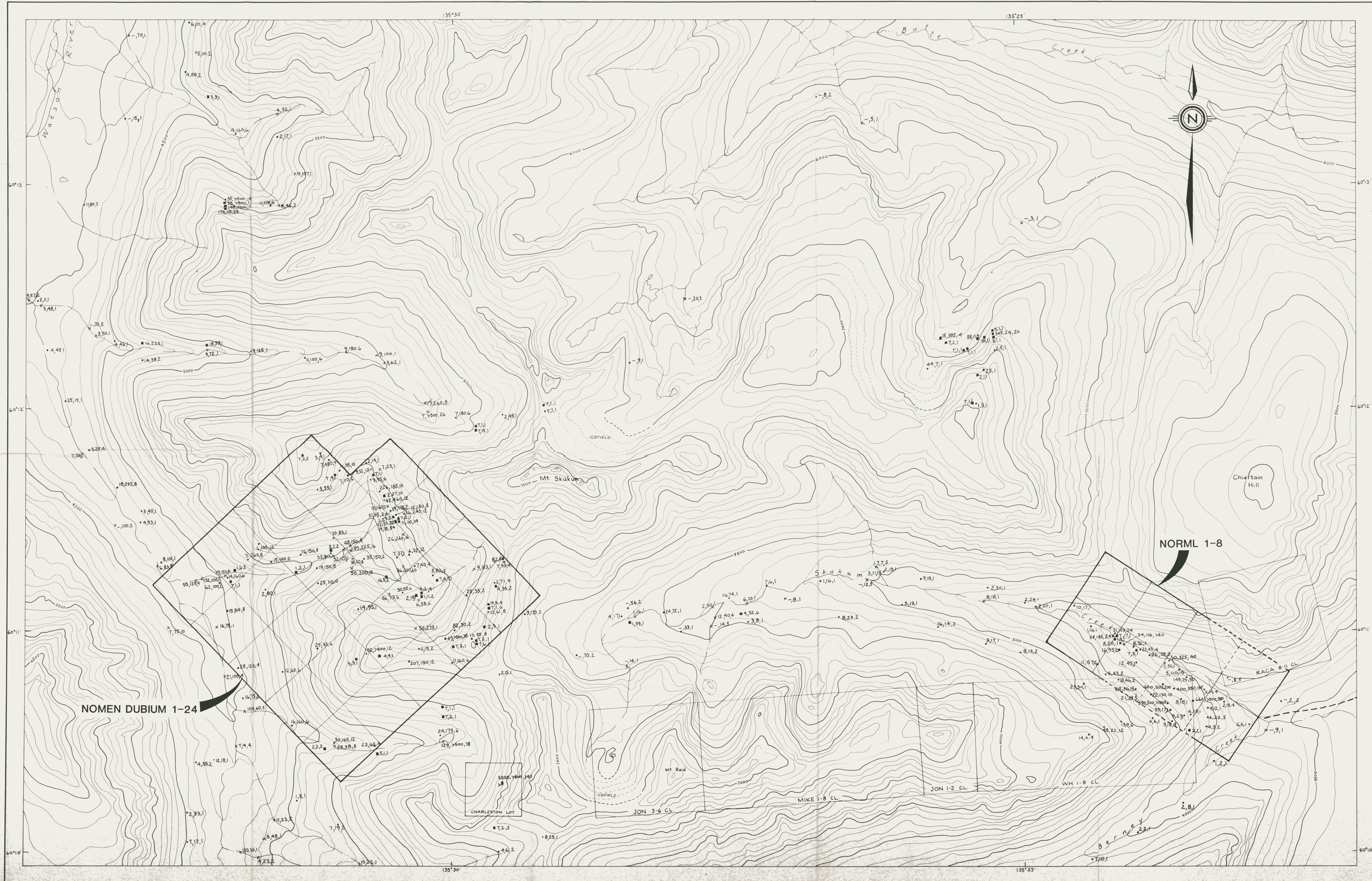
Quartz veining may also generate the geochemical anomalies at the Nomen Dubium area, but since the geochemistry suggests a much larger source area than at the WH area, the potential for a bulk-tonnage precious-metal deposit is better. Further work should consist of detailed prospecting, emphasizing rock sampling, to determine which unit is associated with the anomalous geochemistry. More geochemical sampling is required around the periphery of the claims to determine the extent of the anomaly, and additional claims should be adjoined as required. Several crew-days of regional prospecting east and north of the claim group are required to evaluate the potential of this region.

Respectfully submitted,
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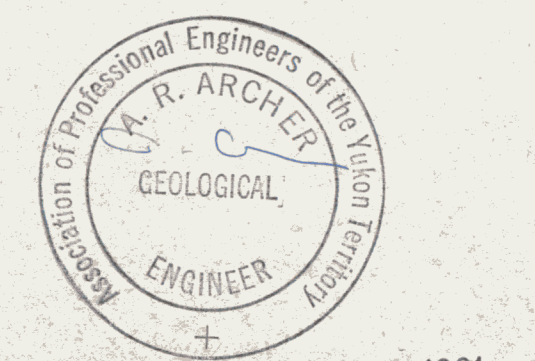
LEGEND

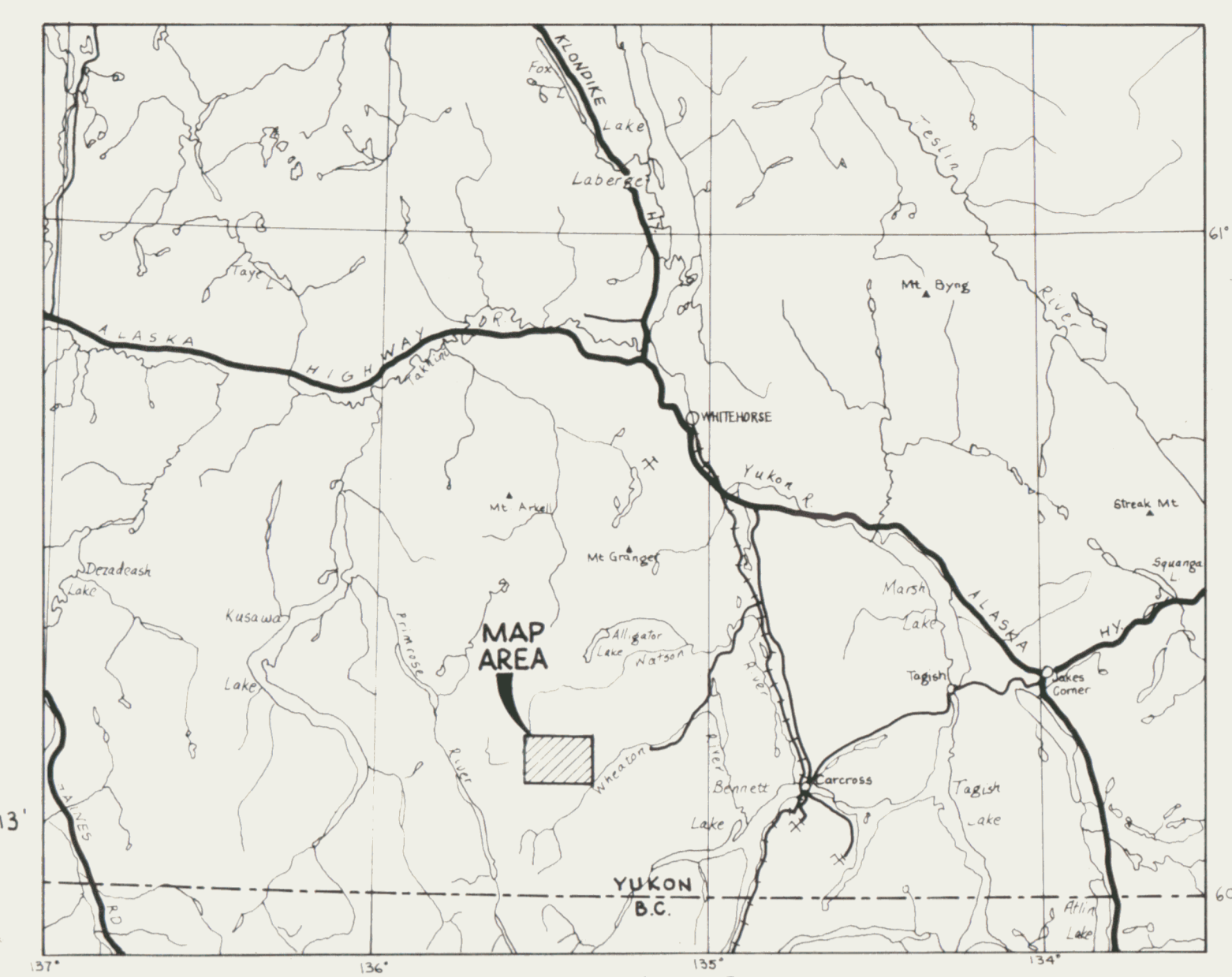
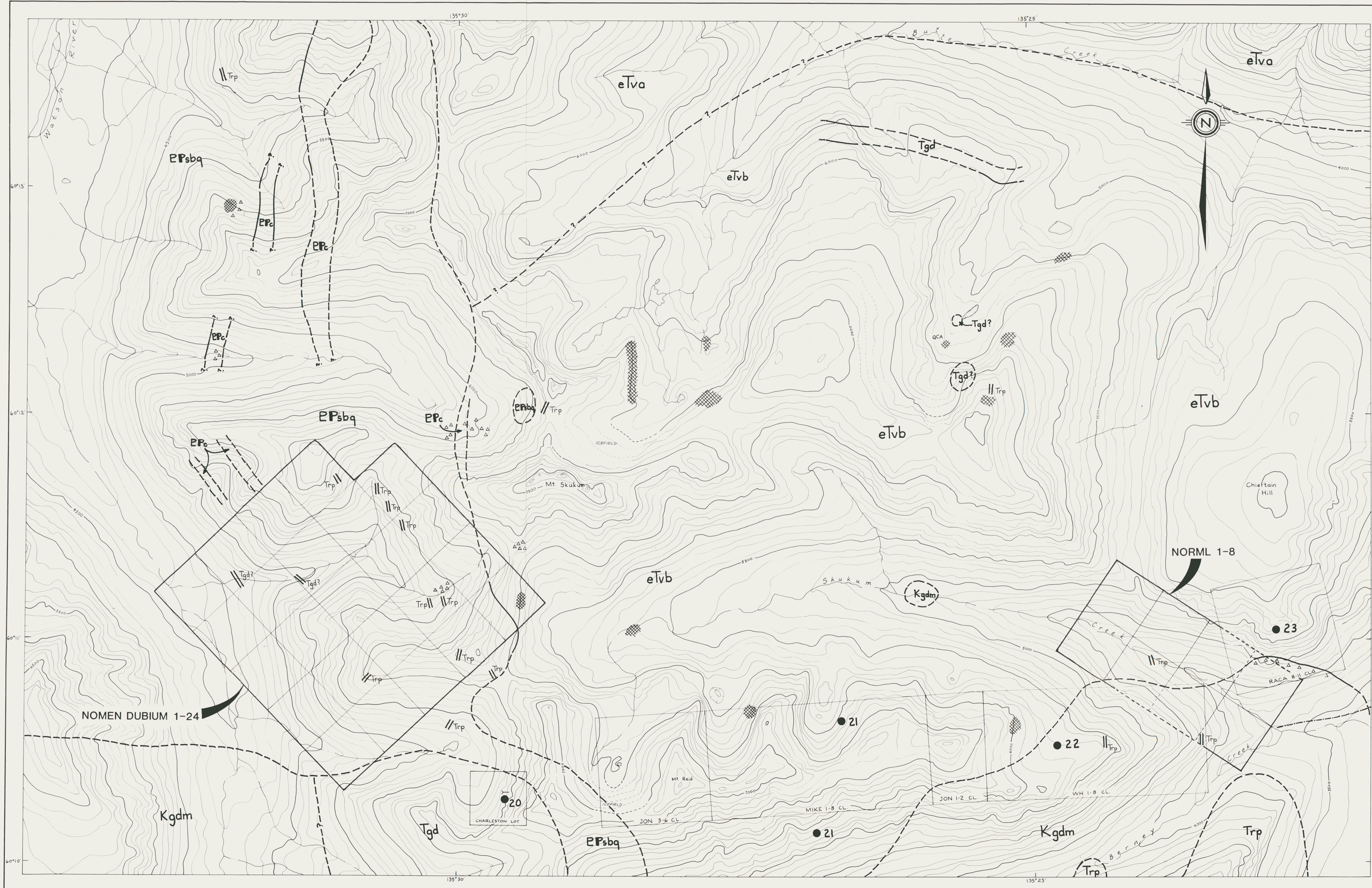
- NAT CLAIM BOUNDARY
- WH, RACA, ETC CLAIM BOUNDARY
- TOPOGRAPHIC CONTOURS (50 FT INTERVAL)
- TRAIL
- CREEK, LAKE
- ADIT
- SOIL
- SILT
- ROCK
- TRACE
- NOT AVAILABLE

25, 110, 10 GOLD (ppb), ARSENIC (ppm), SILVER x10 (ppm)

FIGURE N10-A
 ARCHER, CATRO & ASSOCIATES LTD
GEOCHEMISTRY
 MT. SKUKUM AREA
 NAT JOINT VENTURE

SCALE 1:10,000
 0 100 200 300 400 500 600 700 800 900 1000 Feet
 0 1 2 3 4 5 Miles





LOCATION MAP
SCALE 1:100,000

- LEGEND**
- NAT CLAIM BOUNDARY
 - WH, RACA, ETC. CLAIM BOUNDARY
 - TOPOGRAPHIC CONTOURS (100 FT INTERVAL)
 - TRAIL
 - CREEK, LAKE
 - ADIT
 - 21 YUKON MINERAL INVENTORY OCCURRENCE

- GEOLOGICAL LEGEND**
- TERTIARY**
- Trp stocks, plugs and dykes quartz and feldspar porphyry with aphanitic rhyolite matrix; some granite porphyry and intermediate plugs and dikes
 - Tgd inhomogeneous, locally gneissic, porphyritic hornblende granodiorite and quartz monzonite; abundant dioritic and metasedimentary inclusions
 - eTva SKUKUM GROUP: pale grey, green, and white rhyolite and trachyte breccia, tuffs and flows; some felsic plugs and dykes (Trp)
 - eTvb SKUKUM GROUP: purple, green, and white andesite and basalt breccia, tuffs and flows; minor greywacke at base
- CRETACEOUS (?)**
- Kgdm RUBY RANGE BATHOLITH: coarse-grained, equigranular biotite-hornblende granodiorite and quartz monzonite
- PROTEROZOIC and/or PALEOZOIC**
- EPc YUKON GROUP: marble, crystalline limestone; minor graphitic limestone and skarn
 - EPsbq YUKON GROUP: quartz-mica, quartz-chlorite schist and quartzite; minor amphibolite, feldspathic gneiss
- dyke or narrow intrusion (orientation not necessarily representative)
 - gossan, usually pyritiferous
 - breccia
 - RACA quartz-carbonate alteration
 - geological contact (observed, assumed)

FIGURE N10B
ARCHER, CATROD & ASSOCIATES LTD
GEOLOGY
MT. SKUKUM AREA
NAT JOINT VENTURE
SCALE 1:10,000