Office of the Supervising Mining Recorder
MAY 7 1980
WHITEHORSE
Yukon Territory

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MAYO, Y.T.
I.A. & N.D.

1979 - PROJECT REPORT-DUBLIN GULCH PROPERTY
Claim Groups A-L & Ungrouped Claims
Geology, Geochemistry, Geophysics,
Diamond Drilling
Mayo Mining District
N.T.S. 106-D-4
Claims - Alec, Bob, Dave, D.G.,R.D.,
Jeff, Mar, Smoky

VOLUME I

RECEIVED
MAY - 3 1980
MINING LAND AGENT'S OFFICE
WHITEHORSE, Y.T.

By: W.B. Lennan
W.A. Gewargis

Insert Reports By: W.R. Howard
S.C. Bartlett

090 604

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 $ 106,800

Resident Geologist or
Resident Mining Engineer

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

B.R. BAXTER
Supervising Mining Recorder

Commissioner of Yukon Territory

Office of the Supervising Mining Recorder
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Supervising Mining Recorder
Commissioner of Yukon Territory

8
MAY - 8 1980

090 614

VOLUME I

1979

# Project Report

On

# The Dublin Gulch Property

Yukon Territory

Mayo Mining District

N.T.S. 106 D-4 64° 2' 30"N.Lat. 135° 47' W.Long.

UNGROUPED CLAIMS: Alec, Bob, D.G., Dave, Jeff, Mar, R.D., Smoky

CLAIM GROUPS: A, B, C, D, E, F, G, H, I, J, K, L

COMMODITIES: Gold, Tungsten, Tin, Silver

PROPERTY OWNERSHIP: Canada Tungsten Mining Corporation Limited
Options from G. Dickson and Queenstake Resources

April 1979

Written by: W.B. Lennan B.Sc.
W. Gewargis B.Sc.

Reports on Tin Dome and Gill Gulch
by: W.R. Howard B.Sc.

Report on The Gold Quartz Vein Fissure System
by: S.C. Bartlett B.Sc.

EXPLANATION OF THE REPORT

This report is organized in such a way so as to incorporate all the work done on the ungrouped claims with the detailed diamond drill work done on the 12 claim groups established in 1979. This was done to provide continuity over the whole property otherwise the data would be fragmented if a separate report were written for each claim group. This will provide the reader with a comprehensive understanding of the geology and geochemistry etc. over the entire property. Parts I to IV detail work done on the ungrouped claims while Part V deals with the diamond drilling work done on claim groups A to L

Appendix I provides a detailed petrographic analysis of trench and drill core rock samples. Appendices II to XIV provide complete Statements of Costs for each claim group. The Appendix for each claim group contains a Statement of cost, Claim List, Drill Hole And Trench Location Map, Claim Group Location Map, Notarized Affidavit, Two Statements of Qualifications and Drilling Invoices. Groups F, G, and H have a drilling invoice attached to Group H only as the costs of this drilling was distributed evenly to F, G and H. This also applies to Groups I, J, K, and L where the drilling invoice is attached to Group L. Trench geology and geochemistry maps are attached to appropriate groups.

This report consists of 3 volumes. Volume I contains the main text of the report, Volume II contains Drill Assay Data Sheets, Drill Hole Summary, and Drill Logs, and Volume III contains all of the maps. These are geology, geochemistry, geophsics and diamond drill section maps

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## SUMMARY AND CONCLUSIONS

Exploration on the Dublin Gulch Property continued in 1979 as a result of encouragement from the 1978 program. The program was set up to further evaluate geochemical anomalies found in 1978 by more geologic mapping, geochemical grid extensions, trenching and prospecting. Initially 3000 feet of diamond drilling was to be done on the Garnet Skarn Zone discovered in 1978. This was expanded to 7,946 feet because of the good results obtained from the first 3000 feet.

The Ray Gulch Grid (south of baseline 10 + 000 N) was extended to the southwest from line 38 + 050 E to 36 + 700 E to facilitate geologic mapping and soil sampling on a 1:1000 scale. This was done in the hopes of extending the Garnet Skarn Zone. Results of this work were not encouraging although several small tungsten and gold anomalies were found. Limited follow up prospecting is required.

The Dublin Gulch Grid (north of baseline 10 + 000 N) was also extended to the southwest from line 36 + 700 E to L 35 + 200 E. This was primarily done to facilitate a continued geochemical survey and geologic mapping at 1:5000. The geochemical survey was extended to try and test the strength of the westward limits of the gold-quartz vein fissure system that was so well outlined by 1978 geochemistry. The results of the new survey show that the zone extends to the southwest and is outlined by high order tungsten and gold anomalies. Tin is not found in any significant quantities in this system. Silver is present but is more widely dispersed in the soils and does not help in the location of a specific target. The gold and tungsten results indicate the need for an extensive trenching program to help define the extent of the now well established gold quartz vein fissure system.

Trench sampling and sampling and mapping of two adits located within the gold-quartz vien fissure system was initiated. Results of this work proved very encouraging with gold assays ranging from 0.005 oz/ton Au to 3.794 oz/ton Au. The Aurum adit proved to have significantly higher grades than the Beaver adit. The adits are located on a ridge south of Dublin Creek which separates Olive and Stewart Pups. THe results of this work show the definite need for the cleaning out, de-icing, and sampling and mapping of all the old adits and shafts that can be found on this fissure system. An extensive cat trenching program is required along the entire length of the system. Diamond drilling is also necessary to test the down dip extent of the veins.

Tin Dome was remapped in detail (1:1000) to try and obtain a better structural picture of the geology than was obtained in 1978. This continued to be a difficult process because of the extreme broken nature of the rock. Several breccia zones, tourmalinized phyllites and geochemical results still support the hypothesis that a tin bearing intrusive cupola exists at depth. Six more grid lines were added to the two lines put in in 1978. Soil samples taken on these lines significantly enchance and further defined the tin and gold anomalies found in 1978. Geochemistry outlined a new area of potential tin mineralization in a saddle lying between Tin Dome and a small knob located slightly to the northwest. This area was described as a possible fault zone in 1968. It appears that the geochemistry confirms the existance of a mineralized fault zone in this saddle area. Testing by way of trenching and/or diamond drilling should be considered. Three drill holes have been proposed for Tin Dome in 1980 but the orientations of the holes are still being evaluated.

Geologic mapping and soil sampling was done in the Gill Gulch drainage to try and locate the source of tin in the placer gravels where Gill Gulch enters Haggart Creek. It was previously thought that the . . . . . .

mineralization came from a small intrusive plug located on the south side of the Gill Gulch Valley but the sampling indicates that the north side of the valley is a more likely source. Bulk sampling of the soil is recommended for this area. General reconnaissance mapping and sampling should continue in this area.

Reconnaissance geologic mapping and a minor amount of soil and rock chip sampling was done west of and including the Potatoe Hills. The results are plotted on maps 2 and 3.

This work forms part of a continuing program of systematically mapping the outer claim group in the hope of uncovering further mineralization. Thin skarn lenses were found but were not as numerous or extensive as those lying to the west, in the 40 + 150 skarns to the Garnet Zone area. Thicker limestones were found in this area. Quartzites that appear to belong to the "Central Quartzite" unit in the Keno Hill silver camp are found at lower elevations on ridges near Lynx Creek. The contact of the "Central Quartzites" with the Dublin Gulch biotite and muscovite quartzite is a normal conformable sharp contact. There is no faulting along the contact. This confirms that the stratigraphy at Dublin Gulch is younger than or the same age as the Upper Schists found in the Keno Hill area. No significant mineralization has been found in this area to date.

The proposed drill hole locations reported in the 1978 Project Report were revised prior to the commencement of drilling. Detailed geologic mapping at a scale of 1:1000 was carried out over all the skarn zones located in 1978. This work was done in June and July 1979. The results of this work changed the direction of the drill program and new drill sites were located. Initially, 3000 feet of diamond drilling was to be done, but due to encouragement in the first holes this was expanded to 7946 feet.

The depths and grades of mineralized sections in each drill hole and along cross sections are summarized in the detailed drilling report (pages 88 to 108) and in Table 5. (pages 99 to 102).

Two mineralized zones were found to belong to the "Garnet Skarn Zone". They have been called the "Upper Zone" and "Lower Zone". The drilling resulted in the establishment of a "Probable Reserve" of 1,430,174 tons of 0.36% $WO_3$ in the Upper Zone and a "Probable Reserve" of 1,054,852 tons of 0.56% $WO_3$ in the Lower Zone. Reserves in the "Possible" category were projected for the Lower Zone and gave 2,873,963 tons of 0.51% $WO_3$. A total "Possible Reserve" for the Upper and Lower Zones is projected to be 5,358,989 tons of 0.48% $WO_3$.

## RECOMMENDATIONS

The recommendations for the 1980 exploration programme are set out in brief point form below. Detailed description of the reasons for various recommendations with respect to drill site selection, trench site selection, mapping areas and sampling areas are, for the most part, given at the end of each "Part" located within the report.

### Reconnaissance

1) A limited amount of reconnaissance geologic mapping and geochemical sampling should be continued in the area located east of as well as between the Potato Hills and Lynx Dome. This will aid in the overall understanding of the property geology and hopefully locate new mineralized areas.

### Gill Gulch

1) An area outlined on Map 9 in red should have a compass line grid placed over it. Geologic mapping and sampling at a scale of 1:1000 should be carried out on this grid.

2) Bulk sampling at 15 selected sites located on the north and south sides of Gill Gulch are required. Heavy mineral separation techniques and geochemistry for tin should be employed on each sample. Where the greatest amount of tin is found, trenching may be required to assist in locating the source area.

3) General reconnaissance geologic mapping, prospecting and sampling is required on the whole of the Gill Gulch draingage.

Tin Dome

1) Bulk sampling of 9 sites (Marked A-I on Map 11) should be done to compare the amounts of tin in each. Heavy mineral separation and geochemical analysis for tin is required for each sample. It is hoped that this will aid in future trench and drill hole locations.

2) A small magnetometer survey should be conducted over Tin Dome on the grid lines. With previous experience of surveys on the Garnet Skarn Zone, it is expected that the survey will be of little value. It is inexpensive to do and thus should be done to make sure nothing is missed.

3) A gravity survey should be performed along the grid lines on Tin Dome. This type of survey may help more than any other type of survey in locating the suspected buried cupola. Gravity surveys are expensive because all grid lines must be surveyed accurately and elevation control at each station must be very precise.

4) Several trench sites have been suggested by Mr. W.R. Howard in Part III of the report. The actual site locations are subject to change depending on the results of the above survey programmes.

5) Three diamond drill hole sites had been suggested by Mr. W.R. Howard on Tin Dome. Subsequent geological and geochemical interpretations of the 1979 field work data has resulted in a feeling of uncertainty about these drill hole sites and their orientations. The actual drill site locations will be selected in mid-June 1980 after the results of the surveys mentioned above have been evaluated. Three thousand feet of diamond drilling is recommended for the preliminary phase of sub-surface exploration. Large core size (HQ) is recommended for the upper portions of the holes so as to minimize caving problem and facilitate the use of a heavy mud mix. The rock is very broken up on Tin Dome and care must be taken to ensure maximum core recovery.

Gold-Quartz Vein Fissure System

1) In order to evaluate the strike length and width of the gold-quartz vien fissure system, a substantial bulldozer trenching program is recommended. Twenty-one trenches are proposed and are located on Map 14. Seven trenches, totalling 1025 meters, already exist but require excavation to clean out sloughed material. Fourteen new trenches, totalling 3050 meters, are required to crosscut the system. Detailed geologic mapping and intensive channel sampling should be performed on each trench. Samples should be assayed for gold and silver as well as geochemically analyzed for arsenic.

2) Seven diamond drill hole sites, totalling 745 meters (2271 feet), have been selected for the gold zone. They are located on Map 14. These holes are designed to test the strength of the down dip extensions of the various vein structures. In order to maximize core recovery when viens are intersected, NQ core rods used in conjunction with drilling mud are recommended. Reduction from NQ to BQ rods may be possible if ground conditions permit. Descriptions of the proposed drill holes are located in "Part IV" (pages 81 to 85) of the report.

3) It is recommended that the Green Vein Tunnel (located east of the Aurum Adit which follows the Moose or Victoria Vein) be opened up and geologically mapped and channel sampled. The Moose or Victoria Vein was located in the Aurum adit in 1979. A large portion of this vien could not be sampled last year because of ice. This portion of the adit requires de-icing and completion of the mapping and sampling program started in 1979.

Garnet Skarn Zone

1) In order to further evaluate and establish the existence of the projected "Possible Reserves" of the Upper and Lower Zones found within the Garnet Skarn Zone, fill in and step out diamond drilling is recommended. Table 7 (pages 114-116) describes the orientation and purpose of the holes that require drilling. Thirty-four holes, totalling 4910 meters (16,109 feet), have been proposed for drilling in 1980. The holes are plotted on drilling plan map . Changes in drill site locations may occur as the drilling programme progesses resulting from new geologic findings. The footage proposed is the minimum required to delineate projected ore reserves.

2) A small amount of trenching is required in the vicinty of the proposed drill holes that lie east of longitudinal section O-O'. This work can be carried out by the D-6 cat that works with the drill rigs.

Other Areas in the Vicinity of the Garnet Skarn Zone.

Three areas surrounding the Garnet Skarn Zone have received limited attention with respect to the potential for developing additional tungsten bearing reserves. Although the areas are covered with overburden that is somewhat deeper than the 1 to 3 m depths encountered on the Garnet Skarn Zone, float rocks indicate the possible existence of buried skarn units. It is imperative that these areas be tested by diamond drilling even in the event that significant tonnages are not found in the Garnet Skarn Zone. The potential of these areas are such that ore bodies of sufficient tonnage and grade may be found and developed with or without additional reserves coming from the Garnet Skarn Zone. This work is not recommended for the 1980 field season but is certainly recommended for the future. The areas are listed below.

1) Garnet Skarn Zone

A) North extension

This is the first area that should be tested at a future date. It is located 100 meters north of Section A-A' (D.D.H. 79-8) near lines 38 + 800 E and 38 + 950 E at station 9 + 950 N. It is possible that silicified vitreous skarns carrying in excess of 0.5% $WO_3$ lie within 50 meters of the surface. This would belong to and extend the Upper Zone found in D.D.H. 79-8.

The intrusive contact is believed to be near this area and may elevate tungsten grades.

B) West Extension

This area lies immediately west of all the western most holes drilled in 1979. The contact between the skarn units and the granodiorite stock is not established in this overburden covered area. The area is more specifically located west of U.T.M. coordinate line 463000 E and between Sections B-B' and H-H' (see map 20). From the 1979 drilling results it was observed that the Lower Zone is enriched in tungsten in areas where it was in immediate contact with the intrusive stock. The enriched zones appear to lie between 145 and 200 meters below the surface in the west. The potential for higher grade ore in this area is such that drilling could be easily justified in view of cost considerations for deeper holes.

2) 39 + 400 and 39 + 800 Skarn Zones

These zones lie on the north limb of a southwesterly plunging anticline. The units strike in a northerly direction and dip westerly towards the granodiorite stock. These zones lie to the east of the Garnet Skarn Zone and crop out on the Ray Gulch cliffs. Descriptions and photos of the zones are located in the 1978 Dublin Gulch report. Drill tests of the zones (D.D.H. 79-3, 79-4 and 79-5) were not definitive because of severe drilling problems. This may have been due to the proximity of the drill sites to the Ray Gulch cliff edge. Although the contact area of the skarn zones with the granodiorite stock has

not been established due to overburden cover, it is believed to lie in range of 91 to 800 meters back from the cliff edge to the northwest. (i.e. near the base of Potato Hill). If silicified vitreous skarns similar to that found in D.D.H. 79-8 could be found in this contact area, the potential for higher grade $WO_3$ is apparent. An area lying between lines 39 + 550 E to 40 + 000 E and stations 9 + 800 N to D.D.H. 79-4 is recommended for further diamond drill testing. The holes should be drilled deeper than the 1979 holes as there is a possibility that the dips of the units steepens to $35^{o}$ or more.

3) 40 + 150 Skarn Zone

Althought chip samples taken on the 40 + 150 skarn zone have not been encouraging it is recommended that a 182 meter (600 feet) hole be sunk on it. This is the thickest skarn bed on the property and because of faulting and scree cover it is not known if more skarn beds exist at depth. This should be tested.

# PROPOSED EXPLORATION BUDGET
## DUBLIN GULCH - 1980
## FIELD WORK ONLY

PERSONNEL:

| | |
|---|---|
| 4 Junior Assistants - (sampling, core splitting, etc.) | $ 27,900.00 |
| 2 Geologists | 19,000.00 |
| 1 Project Geologist | 13,000.00 |
| 1 Cook(?) | 9,500.00 |
| 1 Cooks Helper(?) | 8,000.00 |
| 1 Supervisor | 9,000.00 |
| Camp supplies - including core rack material | 6,000.00 |

ROOM AND BOARD: 10 crew and 8 drillers and 2 cat skinners
137 days @ $15.00/day x 18 men — 41,100.00

TRUCK RENTALS: 3 trucks @ $900.00/month 4.5 months — 12,150.00

CAMP SET UP: Rebuild kitchen, build dry and equip, plumbing and wiring, Generator lease. Build secure core storage. Two fuel tanks — 25,000.00

FUEL: TRUCK - CAMP (Gas, stove oil, propane) — 6,000.00

GEOCHEMISTRY:

| | |
|---|---|
| 2000 samples - 3 elements @ $10/sample | 20,000.00 |
| Drill core assaying - 16,000 feet stepout and fill in | |
| 3,000 feet Tin Dome | |
| 2,000 feet Gold Zone | |
| TOTAL: 21,000 feet | |
| 5' intervals = 4200 samples x $18/sample | 75,600.00 |

| | |
|---|---|
| CAT*: | |
| Approximately 40 drill sites to prepare | |
| Drill moves - D-6 cut $16,500/month 4 months | $ 66,000.00 |
| Trenching - D-7 $20,000/month 2 months | 40,000.00 |
| DIAMOND DRILLING: | |
| Mobilization and demobilization - 2 drills | 12,000.00 |
| Drilling - 21,000' @ $30/ft (cementing etc. costs likely) | 630,000.00 |
| Core boxes - 1000 @ $6.00/each | 6,000.00 |
| Fuel - 7500 gals. @ $1.25/gal. | 8,750.00 |
| GARAGE FUEL | 700.00 |
| EXPEDITING | 9,000.00 |
| SAMPLE SHIPPING | 4,000.00 |
| SURVEYING - 21 days @ $100/day | 2,100.00 |
| TELEPHONE & COMMUNICATIONS - $400 x 4.5 months | 1,800.00 |
| RENTAL - Shared costs | 1,500.00 |
| TOTAL: | 1,045,100.00 |

NB: No contingency added

Mucking out, deicing and opening up of old adits necessary in gold zone. Cost not defined at this time.

Approximate Cost(?) $100,000.00

Part I

# Compilation Report of 1978 and 1979 Work
# Detailed Geology, Geochemistry, and Geophysics
# Work primarily carried out on Ungrouped Claims

by W.B. Lennan
W. Gewargis

## INTRODUCTION

### Location and Access - Figure 1 and II.

The contiguous groups of claims called the Jeff, Alec, Dave, Bob, Smoky, D.G., R.D. and Mar are located in the vicinity of Lynx Creek, Dublin Gulch and Haggart Creek. This area is located in the central Yukon some 25 air miles northeast of Mayo and bounded by Lines of longitude 135°39' west long. and 135°55' west long. and by Lines of latitude 64°N lat. and 64°5'N lat. This area is located on N.T.S. map sheet 106-D-4. Twelve claim groups were formed as a result of drilling activity in 1979. The groups were lettered A-L.

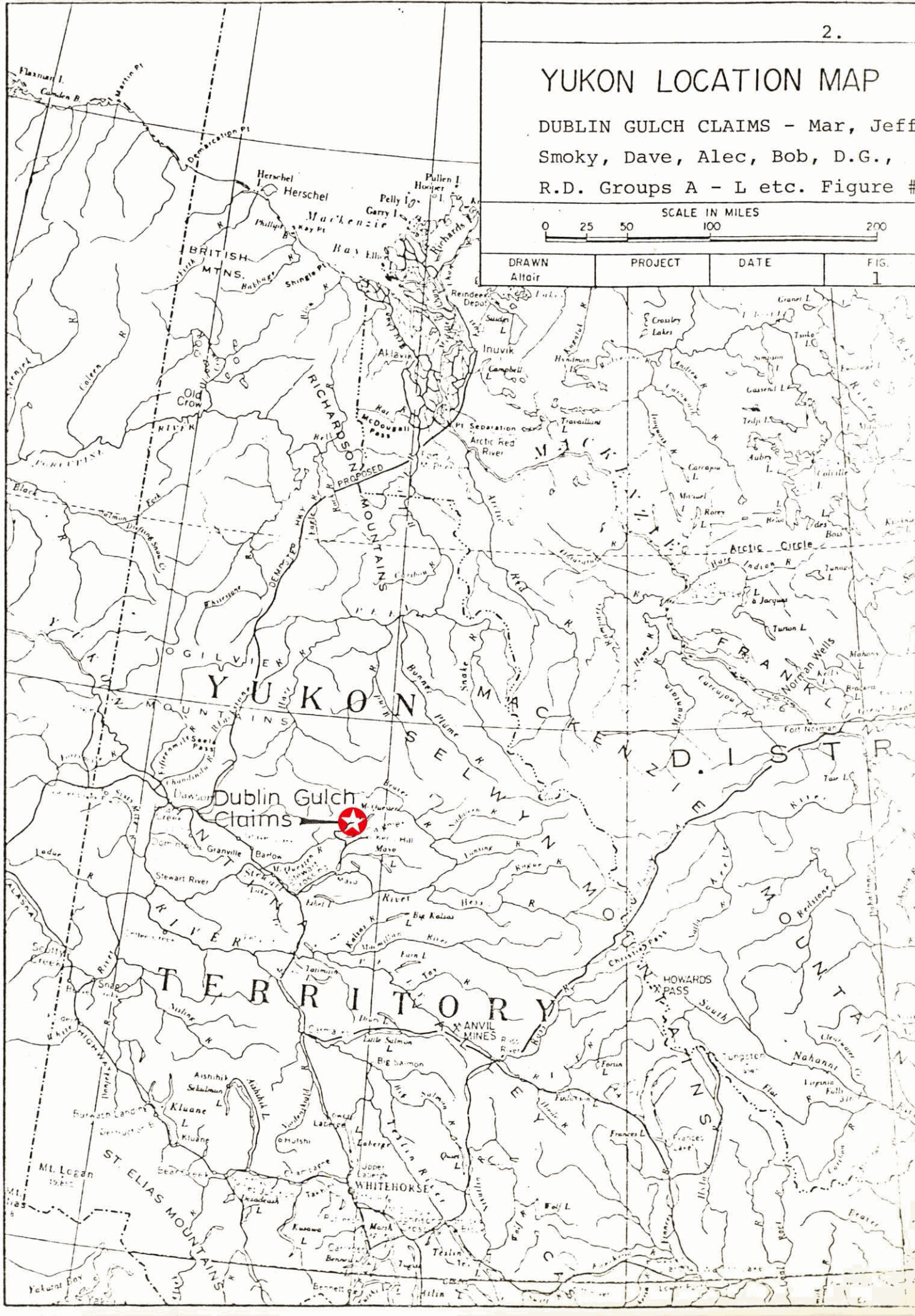
The property is accessible by road some 55 miles from Mayo. A good all weather road goes from Mayo for 30 miles to the south McQuesten River Bridge. From the bridge, 4 wheel drive (primarily) tote road runs along Haggart Creek some 22 miles to the base camp located at the junction of Ann Gulch and Dublin Gulch. For a few weeks in the summer a 2 wheel drive truck can negotiate the road. This road was considerably upgraded during the summer of 1979. From the base camp on Dublin Gulch, a 3 mile very rough cat road, negotiable only by 4 wheel drive, goes up to the summit, near Potato Hills. Some branching cat trails are occasionally negotiable by 4 wheel drive. During the 1979 work season a tote road on the summit near Potato Hills that went to the core racks and core splitting area became unaccessible. This road is the main one that goes past the drilling area to the Potato Hills and out towards Lynx Dome. It is not known whether the mud hole can be fixed for the 1980 season.

# YUKON LOCATION MAP

DUBLIN GULCH CLAIMS - Mar, Jeff
Smoky, Dave, Alec, Bob, D.G.,
R.D. Groups A - L etc. Figure #

SCALE IN MILES
0 25 50 100 200

| DRAWN | PROJECT | DATE | FIG. |
|---|---|---|---|
| Altair | | | 1 |



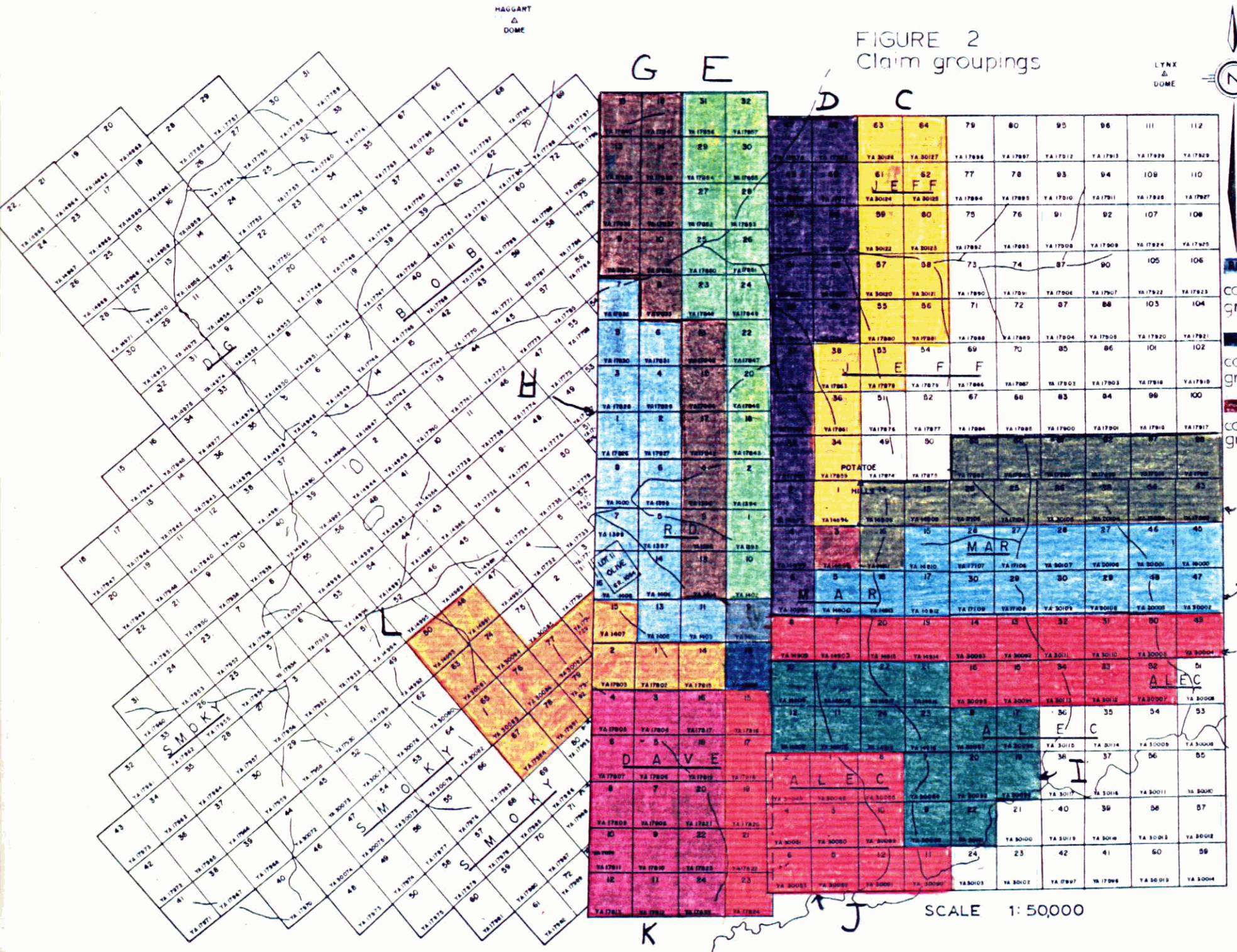



FIGURE 2
Claim groupings

## CLIMATE

The climate is typical of the Central Yukon area with a mean annual temperature of -2°C. The low average temperature is about -10°C and the high average temperature is about 3°C. The temperatures from winter to summer range from lows of -55°C to highs of +30°C.

The average annual precipitation is about 15 inches with most of the rainfall occurring in May and June. Daily heavy thunder showers occur throughout the summer months.

Snow begins to accumulate as early as mid September and is melted by mid June at higher elevations. Up to 5 feet of snow may accumulate in the Upper Ray Gulch - Potato Hills area. Snow did not leave the summit near the Potato Hills unitl June 20, 1979. Unusually heavy snow cover led to spring flooding in May and June 1979.

## TOPOGRAPHY AND VEGETATION

Three southwesterly trending drainages traverse the claim area. Haggart Creek, Dublin Creek and Lynx Creek make up the main drainages. Haggart Creek flows due south from a point 1 mile upstream from its junction with Dublin Creek. Lynx Creek flows into Haggart Creek at a point where Haggart Creek turns abruptly and flows southwesterly again and later empties into the South McQuesten River system.

All of the above creek valleys are heavily timbered with mixed fir and spruce. This type of timber extends up the valley walls to an elevation of 3500 feet where it gives way to scrub balsam and spruce. The balsam and spruce trees become more stunted as one approaches the 4000 foot elevation level. Dense buck brush predominates all areas of the mountain slopes above 4000 feet. The only exceptions are the hillocks that approach 5000 feet in elevation. The Potato Hills, Lynx Dome, Haggart Dome and parts of the ridge extending southwest from the Potato Hills are barren except for lichens and alpine grasses and flowers.

The Potato Hills form the highest topographic point in the claim area reaching an elevation of 5043 feet. All the mountain slopes are fairly steep but rather uniform from one slope to the next. The slopes range from $25^{o}$ to $40^{o}$. The southeasterly facing slopes of the ridge north of Lynx Creek are the exception. Ragged cliffs dominate this slope and are typified in Ray Gulch. The steepness and dense buck brush on this slope made line cutting, geologic and geochemical work very difficult.

HISTORY - (From 1978 Dublin Gulch Report)

The Dublin Gulch - Haggart Creek area is rich in mining history dating back to the Klondike gold rush days.

Placer gold was discovered in Haggart Creek and Dublin Gulch in 1898 and 1899. The creeks were worked sporadically during the early stages and it wasn't until 1904 that scheelite was identified in the placer deposits. In 1908 Cockfield located scheelite and wolframite in quartz viens and pegmatitic viens at the head of Dublin Gulch. The results of this discovery and the increasing amounts of placer gold and tungsten being discovered, spurred on a flurry of lode deposit exploration from 1913 to 1916.

A major vein fissure system containing gold, arsenopyrite and silver was discovered on the north facing slopes of a ridge to the south of Dublin Creek. J.S. Stewart and Dr. William Catto discovered ten viens belonging to this system between Stewart and Olive Gulches. Other veins belonging to this fissure system were discovered in Eagle Pup, Stuttle Pup, Platinum Pup, Bawn Boy Pup and near the junction of Cascallen and Dublin Gulch. A significant number of the veins have extensions of greater than 200 feet and widths of up to 10 feet.

Many test pits, adits and shafts were driven on these veins and values of $15 gold across 5 foot widths were common. Keeping in mind that gold was $20/oz. then this translates into $400 over 5 feet at today's price of $530/oz., Canadian.

Many old reports (now out of print) by T.A. MacLean, and D.D. Cairnes of the Canadian Dept. of Mines 1914 and 1915 detail work on these veins. Dr. W.E. Cockfield of the Geological Survey of Canada reported on many of the above occurrences in a publication released in 1918.

From 1916 to 1918 Mr. Robert Fisher prospected around the headwaters of Dublin Gulch and located several small lode deposits carrying scheelite. Little or no work was carried out on these showings. Dr. Cockfield of the G.S.C. reported that the scheelite in the placer deposits was emanating from quartz veins and pegmatitic veins found in a small Mesozoic monzonite stock located at the junction of Dublin Gulch and Olive Gulch as well as from the numerous and similar veins found in the main 3 mile long granodioritic body found to the south of Dublin Gulch. The veins vary in width from 1/8 inch to over 5 feet. Assays range from 0% to 10% $WO_3$. It was during this time that some scheelite concentrate was saved and shipped out from the placer operations.

From 1934 and into the 1940's, Fred Taylor, Blyler and others worked the placer ground in Dublin Gulch. In 1940 cassiterite was recognized in placer concentrates. The cassiterite appeared to emanate from Ann Gulch and further prospecting led to the discovery of two tin, tourmaline quartz veins on Tin Dome in 1943 (Map 11). In 1945 Cominco drove a short adit (56') towards the vein intersection but did not reach it. No assessment work has been recorded since 1945. In april of 1977 Gordon Dickson staked 56 mineral claims over the Tin Dome showings. The claims were optioned to Canada Tungsten in 1978.

Some historical notes pertaining to other areas around Dublin Gulch, particularly Ray Gulch, are as follows.

Harvey Ray, a prospector, located scheelite bearing float in Ray Gulch in 1942. The source areas were not located unitl 1943 when the G.S.C. located several skarn zones at the head waters of Ray Gulch and other gulches cutting the steep southerly facing slope. All the gulches flow into Lynx Creek.

Mayo Silver Mines Ltd. located a 2½ foot arsenopyrite quartz vein on the east side of the headwaters of Ray Gulch. They did not explore for tungsten.

Mr. Provencher staked the Ray Gulch and Dublin Gulch area in 1968. The ground was optioned to Great Plains Development in 1968, Tam Mining in 1969 and Connaught Mines Ltd. from 1969 to 1971. In 1970 and 1971 Canex carried out an extensive soil sampling programme that extended from Platinum Pup to the Potato Hills and covered the south side of Dublin Gulch.

Canex drilled 2000 feet and cut 20 bulldozer trenches in the Dublin Gulch - Bawn Boy Pup area. The work was primarily confined to the granodiorite stock in the hopes of locating a large low-grade scheelite bearing quartz vein stockworks. No work was done in the Ray Gulch area.

In March of 1977 Gordon Gutrath of Queenstake Resources staked 24 Mar claims in the Ray Gulch drainage area. In October of 1977 Mr. Gutrath staked the Mar 25 to 30 claims which lie attached to but to the east of the Mar 1-24 claims. Queenstake carried out a small programme of geologic mapping and sampling of the skarn zones in the Ray Gulch areas. One year of assessment was applied to the Mar 1-24 claims. No assessment on the Mar 25-30 was applied by Queenstake. Canada Tungsten optioned the Mar claims from Queenstake during the summer of 1978.

REFERENCES


Cockfield, W.E.: Summary Report, 1918, Part B, Canada Department of Mines, Geological Survey.

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Cairnes, D.D.; Sessional Papers 1916 Nov. 26

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Bostock, H.S.; Map 43-9 with descriptive notes and 1949 map indicating tin prospect.

Bostock, H.S.; Canada Department of Mines 1942

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Boyle, R.W.; Bulletin 111

Lennan, B.; 1978 Project Report on the Dublin Gulch Property.

## WORK DONE IN THE 1979 PROGRAMME

After the extensive preliminary exploration done in 1978 was carried out and the results evalutated, a programme oriented towards detailed exploration of specific targets was carried out in the summer of 1979 from May to the end of September.

The Ray Gulch Grid, established in 1978, was extended to the southwest from the 10+000N baseline. The new lines start on L38+050E and ended to the southwest at L36+700E. The grid was established first to facilitate detailed geologic mapping and geochemical soil sampling. This was done to gain a better understanding of the extent of the garnet skarn zone and intrusive complex prior to diamond drilling start up on the garnet skarn. Changes to drilling decisions could be made more readily.

Sections of the McElhanney 1:5000 topographic maps produced in 1978 were blown up and redrafted at a scale of 1:1000. The blow ups were selected from map sheets 6 and 7. (See maps 1A to 1I with reference map sheets) and covered virtually all the Ray Gulch Grid area southeast of baseline 10+000N. The U.T.M. coordinate lines were transferred from the 1:5000 maps to the 1:1000 maps as well for easy cross reference. These maps were used for detailed geologic mapping and drill section location. The Dublin Gulch Grid was also extended in 1979. This grid runs northwesterly from baseline 10+000N. The grid lines started from L36+550E and ended at L35+200E. The grid was extended to facilitate geologic mapping and soil sampling over the gold fissure zone. Tie in of shafts and adits was also possible.

All lines were compassed, picketed and cut out by Bema Industries. A total of 20.15 miles of line was done in this manner while an additional 9 miles of compassed and picketed lines were added to the Tin Dome Grid.

Geochemical soil sampling was carried out on the new grids. On the Ray Gulch extension a sample interval of 25 meters was used. A fifty meter sample interval was used on Dublin Gulch extension and 25 meter intervals were used on the new Tin Dome lines. The samples were analyzed for the most part for tungsten, tin, gold and silver. Many of the samples taken in the Tin Dome and Gill Gulch area were analyzed for antimony and arsenic as vein fissure systems occur in these areas, and it was felt that they might be pathfinder elements.

Detailed geologic mapping at a scale of 1:1000 was carried out on the Ray Gulch grid established in 1978 and on the 1979 extension. This was done to get good control on the Garnet Skarn Zone, L39+400 skarn zone, L39+800 skarn zone and L40+150 skarn prior to drilling. This made drill site selection more precise. This scale was also selected because of accuracy of drill sites and geologic section work. Geologic mapping was also done east of the Potato Hills. This work forms part of a continuing mapping programme on the entire property and work will extend farther east and north towards Lynx Dome each year. This mapping was done at 1:5000 scale.

Geologic mapping at 1:5000 was done on the Dublin Gulch grid extension covering the gold fissure zone. Tin Dome was remapped at 1:1000 scale and 1:100 scale. The work done in 1978 was not adequate with respect to structural geology. The work resulted in the selection of 3 drill sites for 1980.

Geologic mapping at 1:5000 was done in the Gill Gulch area. This was done to try and locate the source of tin found in the placer gravels at the confluence of Gill Gulch and Haggart Creek.

A small magnetometer survey was done on the Dublin Gulch grid and Ray Gulch grid in the vicinity of the baseline 10+000N. The survey was designed to locate the granodiorite stock and metasediment contact. This survey extended from L36+700E to L38+950E.

The diamond drilling programme was initally planned at 3000 feet. With success on the first hole, the programme was subsequently expanded and ended after 7946 feet had been completed. Twenty-one holes were drilled with the last one not being completed due to freezing problems. The bulk of the holes were drilled on the Garnet Skarn Zone. Diamond drill holes 79-3 and 79-5 tested the L39+400 skarn zone and D.D.H. 79-4 tested the L39+800 skarn zone. A surveyor was called in near the end of drilling and surveyed the holes in and tied them to the 1978 McElhanney survey and aerial photography sites.

The last work done on the property was the opening up of 2 old adits on the gold-quartz vein fissure system on the south side of Dublin Creek. Because of ice conditions, very little cleaning of the adits could be done. Samples were taken across the veins at specific intervals. Vein samples and composite samples (vein material and wall rock) were taken at each site. Geologic mapping was then carried out on all exposed tunnels. The results proved encouraging. The adits are presently called Beaver and Aurum.

Ten old trenches in the "Garnet Skarn Zone" were scraped out with a D-7 cat and were then sampled and mapped. Old trenches in the vicinity of the adits were also sampled intensively and geologically mapped.

Local Geology (Maps 1A to 1I,2,3)

Regional Geology, structural Geology, Quartz veining and Mineralization have been described in detail in the 1978 report on pages 17-19 and 39-50 and will not be repeated here.

General statement

A programme of reconnaissance and detailed geologic mapping and geochemical sampling was carried out by Canada Tungsten personnel during the summer of 1979 on all claims belonging to the Dublin Gulch Claim Block. These claims are: Jeff 1-112, Alec 1-60, Mar 1-30, Dave 1-24, Smoky 1-82, D.G. 1-56, R.D. 1-16 and Bob 1-73. Although the same amount of work was done in 1978 as was done in 1979, the 1979 work concentrated on more specific areas of interest located as a result of the 1978 work. The areas are: Tin Dome, Gill Gulch, east of Ray Gulch and the "Gold-Quartz vein fissure system". Each of these areas has a separate report enclosed. Any information with respect to geology has been incorporated with the Canada Tungsten work and is provided on the geologic maps in this report.

Rock Types (From 1978 work and new work in 1979)

Before metamorphism occurred in the area, the rocks originally consisted of a thick succession of relatively pure and well sorted quartz arenites, arkoses, pelitic sediments and limestones.

The two or three phases of regional metamorphism caused the formation of quatzites, phyllites, gritty quartzites, marbles and skarns.

Small intrusive plugs and stocks were emplaced in Cretaceous times along the major zones of weakness. The intrusive activity took place much later than regional metamorphism.

Yukon Group Sedimentary Units - (Precambrian and/or Paleozoic)
See Maps 1A to 1I, 2, 3, 11, 12

1978 Legend Revised in 1979

Unit O - Phyllite, Oa buff phyllite $\pm$ andalusite (brown)
$O_b$ graphitic phyllite and slate (black),
$O_c$ chloritic schist and phyllite, $O_d$ silver phyllite.

These rocks are graphitic phyllites that were originally black shales or argillites. Foliation planes are parallel to the bedding. Two cleavages are evident and often a lineation formed by the intersection of the two cleavages is prominent. The black phyllites exhibit a very lustrous shine where graphite is smeared along foliation planes. These rocks are primarily located in a domed fault block that extends from Tin Dome (N.W. Of Ann Gulch - Map 11 ) to the west bank of Haggart Creek just opposite the mouth of Dublin Gulch. A small outcrop is located on the west side of Haggart Creek on the northeast side of Potato Hill.

Very intensely folded black phyllites are located on Dublin Creek approximately 500 meters southwest of the mouth of Ann Pup. This location is where the Tin Dome fault zone crosses Dublin Creek (Map 2 ). It is this intense folding that suggests thrusting along the Tin Dome fault.

Unit l - Marble (Maps 2,3)

Pure white to grey units of marble are found interbedded with biotite and muscovite quartzites and phyllites. The main outcrops are located on the southwesterly facing slopes of the ridge lying between Dublin Gulch and Lynx Creek.

The textures of the marble vary from relatively massive unaltered limestone to sugary textured crystalline marble. THe best exposures of marble are located on L38+050E station 8+900N, L39+700E station 8+900N, L38+850E station 9+200N and 8+900N, L40+000E station 8+700N, L40+300E station 8+650N and 40+600E station 9+050N.

Marble has also been located on the Jeff 100 claim and on a creek to the east of the claim block (see map 2,3 ).

Unit 2-3 Buff Quartzite

White to grey units are found interbedded with biotite and muscovite quartzites. This unit is made up of three types of quartzite; deformed, massive, and biotite. The most abundant minerals are quartz, biotite, sericite, minor tourmaline, trace epidote and zircon. The best exposures of these quartzites are located on Ray Gulch, northeast of Potato Hill and Tin Dome.

Unit 4 - Green Quartzite

A greenish unit is found interbedded with biotite and muscovite quartzites. The most abundant minerals are quartz, calcite and tourmaline. They are found in the Ray Gulch area.

Unit 5 - Muscovite-Quartzite (schistose)

This unit is made up of three rock types. The first rock type in this unit is a white to pale green, very hard and pure muscovite quartzite. Although massive in appearance, due to its hardness, the rock is very finely laminated (1-2mm thick) with a dusting of very fine grained muscovite lying in lamination planes.

Muscovite-quartzite schist is the most common rock type in this unit. Sericite is often found with muscovite on foliation planes. The schistose testure is caused by platey layers of muscovite separating thin (1-3mm) of quartz grains. This rock type is cream coloured to light brown. THis unit has been described as being a banded gneiss along with biotite quartzites.

Muscovite phyllites are the remaining rock type belonging to this unit. These rocks are composed mainly of muscovite and/or sericite. This imparts a bright lustre to the rocks, particularly in sunlight. Only a few beds of the rocks belonging to this unit are found on the southeast side of baseline 10+000N. An increase in occurrences of this unit are found to the southeast of baseline 10+000N in the vicinity of lines 40+150E and 40+600E between stations 8+600N and 9+300N. This unit predominates the area to the west of Haggart Creek and is found on the Smoky 13-26 36-43, D.G. 1-38, Bob 8-49, Bob 54-73 and the Jeff 9-16, 25-32, 45-47, 61-64, 79-80, 95-96 and 111-112 claims which lie between the east fork of Haggart Creek. Haggart Lynx Domes are underlain by the muscovite-quartzite unit.

Unit 6 - Striped Hornblende-biotite-plagioclase dyke rock

Because of textural difference this rock type was mapped as a separate unit. It appears to belong to Unit 17 which is comprised of mafic dyke rocks.

Unit 7 - Biotite-Quartzite (schistose)

This is a very distinctive unit that occupies a large portion of the claim area. The best exposures are located to the southeast of baseline 10+000N on the Ray Gulch Grid. It forms a very thick succession (500 meters exposed) that is interbedded with skarn units. The granodiorite stock intrudes

this unit almost exclusively and small pendents of biotite-quartzite are found in places. Good exposures are also located on the North Ridge between Dublin Gulch and the east fork of Haggart Creek. The claims underlain by this unit are: Alec 1-60, Mar 1-30, R.D. 9-12, Dave 3-24, Smoky 49-75, 78, 78-81, D.G. 45-52, Bob 50-53 and Jeff 1-8, 17-24, 33-34, 49-60, 65-78, 81-94 and 97-110. This unit is characterized by a grey to black colouration (depending on biotite content) and schistose texture caused by the formation of biotite content) and schistose texture caused by the formation of biotite on foliation planes between white quartz and feldspar laminae.

Unit 8-9 - Laminated Diopside Skarn and Vitreous Skarn (Map 1F and Appendix No. I, Sample No. 14 (Trench 9), Sample No. 15(39+800E), Sample No. 16 (39+850E).

Four major skarns were identified during the detailed mapping programme. Examples of varying degrees of skarnification were found in many thinly bedded skarns throughout the property. The colour of skarns vary from light to dark green. The colour is dependent upon the composition of the pyroxenes and the amount of calcium in the skarn. The light green skarns represent the diopside end of the pyroxene solid solution series while the dark green skarns represent the hedenbergite end of the solid solution series. Light green skarns also carry more calcium. It appears that the light green diopside skarns have not undergone intense skarnification while the dark green hedenbergite skarns have undergone almost complete skarnification. The most completely skarnified rocks carry less than 5% carbonate Next to diopside-hedenbergite the most abundant minerals are quartz, plagioclase, feldspars and uralite. The vitreous appearance of this type of skarn is due to high quartz content as in Sample No. 14. Hand sample appearance is thus a useful exploration tool as abundant quartz is often accompanied by significant amount of scheelite.

Previous petrographic studies (see Appendix I) indicate metasomatic involvement of the intrusive rock as opposed to a strictly regional metamorphic origin for the remaining skarns which is indicated by sodic plagioclase. The well developed fine laminations are due to grain size contrasts and variations in abundance of pyroxene and variations in the pyroxene-plagioclase ratio. These may reflect laminations in the parent rock or some process in skarn formation. Sample No. 14 contained abundant post lamination quartz as well as considerable scheelite. The skarns range in thickness from 10 cm to greater than 12 meters.

Unit 10 - Massive Diopside Skarn (Appendix No. I, Sample No. 17, Sample No. 20)

Thick skarn lenses appear massive, relatively coarse grained and lack a laminated fabric. The colour of this unit is dark green which represents the hedenbergite end of the solid solution series and it appears that this unit has undergone almost complete skarnification.

Unit 11 - Garnet Diopside Skarn (Map 1F , Vol. II Core Logs)

This zone is not represented in outcrop, but is composed from a considerable amount of collected float samples, detailed geological mapping and diamond drilling on the rounded scree covered hills located between, and including, lines 38+200E and 38+800E and between stations 10+100N and 8+600N. It is believed that garnet formation occurs as one approaches the intrusive contact rather than in those outcrops located on cliff faces in the area described above. Tungsten (scheelite) mineralization is greater in the Garnet Skarn Zone than in the other 3 zones discovered, making this a good exploration target. Several samples taken of garnet bearing float and trenching assay greater than 1.0% $WO_3$. To avoid cluttering these samples, they are plotted on geological maps.

Garnets were found in Diamond Drill Hole 79-4 with massive diopside skarn. This could indicate a possible extension of the Garnet Skarn Zone to the northeast near the contact with the intrusive or existence of a similar zone near the contact with the intrusive on the west side of the intrusive intersected in hole 79-3. This makes the area near the contact with the intrusive a good exploration target.

39+400 Skarn Zone (Section NN', Map 2, 35)

This skarn zone is approximately 23 meters thick and dips steeply toward the granodiorite stock contact area in the northwest.

The skarns are massive appearing as dark green laminated diopside-hedebergite units that are interbedded with grey to black biotite quartzites. Garnets have not been observed in this zone to date. The zone is further away from the intrusive contact than the Garnet Skarn Zone. Resampling the zone the assays ranged from 0.01% $WO_3$ to 0.71% $WO_3$. Scheelite is disseminated throughout the skarns, but has an affinity for quartz grains. The 39+400 skarn zone is located between lines 39+200E and 39+400E near station 9+300N. Where this zone comes into close contact with the intrusive stock, a garnet formation and better scheelite mineralization may take place.

39+800 Skarn Zone (See Plate 2, Figure 5 and Map 5 1978 Report)

The skarn units of this zone are similar to those of the 39+400. This skarn zone lies between lines 39+550E and 39+850E and between station 9+400N and 9+500N.

The true thickness of this zone is not known. The old trenches that were cut in the 1960's have exposed 13 meters, but moss, brush and scree cover the northeast and southwest extensions. Two normal dip slip faults

with approximate 10 meter and 2 meter displacement have offset the 39+800 zone between line 39+550E and 39+700E. The skarn beds are dark green and appear massive from a distance, but are well laminated when observed more closely. Scheelite is noticeably scarce here as compared to the two previously described skarn zones. Again this zone is still further away from the intrusive contact than the Garnet Skarn and 39+400 skarn zones. Channel sample assays range form 0.01% $WO_3$ to 0.29% $WO_3$. The scheelite is finely diseminated throughtout all skarn beds.

40+150 Skarn Zone (See Plate 3, Figure 6 and Map 5 1978 report)

This skarn zone (the thickest and most extensive on the Dublin Gulch property) outcrops along and between lines 40+150E and L40+300E and between stations 9+200N and 9+300N. Large skarn boulders extend from the sharp bend in Ray Creek at L39+750E station 9+100N. The cliffs along 40+150E station 9+250N expose the best example of this unit. It is 12 to 15 meters thick, dark green equiangular and laminated. There are no quartzite lenses or beds within the main skarn bed.

The skarn is overlain and underlain by biotite-quartzite schists although the overlying schists are more phyllistic than those that underlie the skarn. A thin bed of marble occurs within the underlying biotite quartzite.

The skarn horizon strikes approximately N26$^{o}$E and dips 28$^{o}$NW. A 0.5 meter quartz vein cuts the skarn zone at L40+150E station 9+280N.

Some of the larger (up to 5mm) diopside-hedenbergite grains impart a granoblastic texture to the rock while the finer grained crystals give a laminated appearance to the rock. Quartz veins range up to 5mm in diameter and can compose up to 15% of the rock. It is believed that the quartz was introduced with quartz veining that took place at the time of intrusive activity.

Unit 12 - Alaskite (Map 2,1F)

This unit is very limited in extent and is located on the Garnet Skarn Zone. It forms part of the aplite dykes and is typified by its fine to medium grained texture and pink to off white colour. Quartz constitutes at least 50% of the rock, with biotite and mafics less than 5%.

Unit 13 - Biotite Granodiorite (Map 1A, 1B, 2)

This unit is very limited in extent and is located at line 36+650E station 10+050N. It forms part of the contact area of the main granodiorite stock with biotite-quartzites schists. It is distinguished from the granodiorite by its darker and blotchy colouration. This is due to the xenoliths of country rock being incorporated into partially assimilated rock by the granodiorite.

The writer does not believe that this unit is a separate phase of the granodiorite stock, but an area where the granodiorite magma assimilated pieces of rock, separated from country rock due to shattering caused by intrusion.

Unit 14 - Granodiorite and Granite (Map 2 and Vol. II Core Logs)

This unit forms the largest intrusive body in the Dublin Gulch-Haggart Creek area. It forms a northeasterly trending elongate body on the south facing slopes of the ridge between Dublin Gulch and Lynx Creek. The granodiorite stock is approximately 250 meters wide at its southwestern contact near Platinum pup, and it widens to approximately 1500 meters as it trends toward its northeastern contact near the base of west Potato Hill.

The unit is of typical granodiorite composition, and the stock does not exhibit any compositional zonation changes from the contact area to its core. A textured zonation is evident, with the rock exhibiting a medium grained euhedral equiangular texture as one approaches the contact area, with biotite quartzites and a medium to coarse grained porphyritic texture in the core area of the stock. This porphyritic texture is best exposed on the "Dublin Gulch" grid between lines 36+700E and 38+950E and between stations 10+400N and 10+600N. This main granodiorite stock covers the following claims: Mar 2, Jeff 2, 17, 18, 33 and 34, R.D. 1-8, 11-16, Dave 1-4, Smoky 53, 54, 65, 75-79 and Bob 1-2.

Two small plugs of mafic deficient granites also occur on the property and may be satellitic to the main granodiorite body. They represent a different phase of intrusion and "appear" to be younger than the granodiorite stock.

One of the granitic plugs lies on the south bank of Gill Gulch. It appears that the intrusives are the source of mineralization in this area. They are salmon pink, medium to coarse grained granitoids, commonly porphyritic with feldspar phenocrysts. Some intrusives are close to sub-volcanic (hypabyssal) porphyries with corroded quartz phenocrysts and larger phenocrysts. The Smoky 26-28 and 31-35 claims cover most of this plug.

The second plug is elongate and felsic with a fine to medium equiangular texture. This plug is located near station 8+000N along lines 40+150E, 40+300E, 40+450E and 40+600E of the "Ray Gulch" grid. The claims covering this plug are the Alec 13-16, 29-32 and 48.

Unit 15 - Aplite Dykes (Map 1F,2,Vol, II Core Logs)

There are only three occurrences of aplitic dykes recognized on the property to date. One location is on line 38+500E station 9+100N on the "Ray Gulch" grid and the other cuts across an outcrop of biotite-quartzite located between lines 40+150E and 40+300E at station 9+525N. The third location is on the northeast side of Potato Hill were a number of quartz-feldspar porphyry dykes and sills, similar to the aplitic dykes, occur. The dykes are typified by their fine to medium grained sugary texture and white colouration. Quartz constitutes at least 60% of the rock, and plagioclase grains intergrow and are anhedral in nature. Numerous aplitic dykes and/or sills were intersected in the 1979 drill holes.

Unit 16 - Quartz Monzonite (Map 2 and Appendix I, Sample No. 9 and 10.)

A quartz monzonite plug is located on the property and is quite distinct both texturally and compositionally from the main porphyritic granodiorites and granits. This small plug is located at the junction where Olive Gulch flows into Dublin Gulch. The precise location is at the end of, and between, lines 37+450E and 37+750E on the "Dublin Gulch"grid. The Bob No. 5 claim covers this area. Canex Placer drilled their No. 3 diamond drill hole into this plug in 1971.

The quartz monzonite has a medium to coarse grained porphyritic texture. Orthoclase phenocrysts up to 1 cm in diameter are common. The crystals are anhedral and often contain microperthite lamellae. Quartz is interstitial to the orthoclase. There is the suggestion of a previously microlitic texture with a subsequent formation of interstitial radiating masses of chlorite and prehnite. It is believed that this plug represents a later intrusive phase originating from the granodiorite and is actually an unroofed cupola.

This unit contains a quartz vein stock work that carries scheelite. Where these quartz veins penetrate the biotite-quartzites overlying the plug, cassiterite and minor amounts of molybdenite are found. Petrographic studies from the 1979 diamond drill core indicates the presence of quartz monzonite on the northeast section of the major intrusive, line 38+450E station 9+800N. The intrusive is medium to course grained, averaging 0.5 to 1mm in grain size. Plagioclase forms subhedral grains which commonly show concentric zoning with more calcic cores and sodic rims.

Unit 17 - Mafic Rocks, Gabbros, Diorites and Greenstone

Few outcrops of this unit have been mapped on the Dublin Gulch property. The largest showing is located immediately to the south of the Gill Gulch granitic plug, west of Haggart Creek. The Smoky 36 and 37 claims cover the mafic rock outcrops. The rocks from the above location appear to be dioritic in composition and are dark green in colour. Chlorite alteration is of moderate intensity.

Small gabbroic lenses, exposed by the placer miners, were discovered in biotite quartzite schist. The outcrop is located in Dublin Creek 50 meters upstream from where it joins Eagle pup. These small mafic intrusive plugs are mapped throughout the McQuesten area including the Keno Hill Mining Camp. It is not known if this was the last intrusive phase in the area.

Greenstone was mapped in 1979 northeast of Potato Hill.

Units 18-19

Although these are not rock units in the typical sense of the word, the "units" are in fact two different and mappable types of quartz vein systems. They have been previously described in the 1978 report under the title "Quartz Veining" on page 39 and this will be applicable to this report.

Unit 18 is made up of a quartz vein stockwork that is found within the main granodiorite stock and more preominently within the quartz-monzonite plug located at the junction of Olive and Dublin Gulch.

Unit 19 referes to quartz-scorodite-arsenopyrite and feldspar veins belonging to the gold-quartz vein fissure system described in the 1978 report. Further description is given later in the report under the title Geology of the Gold-Quartz Vein-Fissure System and refers specifically to these veins.

Geology of Garnet Skarn

The area of drilling is underlain by the Yukon Group Metasediments. The metasediments are of probable Pre cambrian and/or Paleozoic age and have been intruded by a three mile long granodiorite stock of Cretaceous Age.

The metasediments that lie to the southeast of the stock consist of repetitious units of biotite-quartzite, biotite-quartzite schist and skarns along with a minor amount of marble. Weak skarnification is observed in some of these units along the tops and bottoms of the beds. Minor scheelite accompanies the skarnified areas. The Garnet Skarn Zone dips northwesterly and comes into contact with the large intrusive near baseline 10+000N. Tungsten mineralization occurs in two main skarn zones within the metasediments. Minor amounts of mineralization occur in the quartzitic metasediments and intrusives.

The Upper Zone is generally found within 100 meters of the surface and is of lower grade than the Lower Zone. The depth of the Upper Zone is dependent upon the drill location. The deeper levels are the down dip extension ususally found to the west of holes drilled where the zone is within 30 meters of the surface. The Lower Zone is generally found at depths greater than 90 meters. Several holes encountered the Lower Zone at a depth of 134 meters. It is believed by the writer that the

Lower Zone may be intercepted at depths greater than 150 meters when testing down dip extensions west of the drilling area.

Detailed geological mapping of the Garnet Zone is shown on Map 1F . Longitudinal sections and cross sections are located on Maps 22 to 37 .

Rock Types

The following rock types were used for purposes of mapping and core logging lithology: More detailed descriptions of core rock types are located in Appendix I.

1. Marble - white to pale grey, thin unit interbedded with biotite and muscovite quartzites, textures vary from relatively massive unaltered limestone to sugary textured crystalline marble.

2. Green Quartzite - green, massive, well banded with abundant quartz, calcite, tourmaline.

3. Brecciated Quartz - white to pale grey, with angular fragments of quartz enclosed in a matrix of kaolinite and lesser calcite and sericite.

4. Biotite Quartzite - light-dark grey, fine-medium grained with fractures, quartz stringers and occasionally cut by quartz veins. Minor muscovite, calcite, scattered andalusite which under a UV lamp gives a white-green fluorescence are also found. Traces of sulphide mineralization in the form of disseminated pyrrhotite occurs along the foliation planes.

5. Laminated Diopside Skarn - light green to pale white, laminations are the results of alternation in diopside versus plagioclase and K-spar contents. Scheelite mineralization is found disseminated throughout this unit.

6. Vitreous Skarn - light to dark green, massive with abundant quartz, isolated scheelite grains are confined to quartz rich area.

7. Massive Diopside Skarn - green, medium-coarse grained skarn with associated scheelite grains, trace of calcite, epidote, pyrite, quartz veins.

8. Garnet Skarn - similar to massive diopside skarn only with associated grains and prophyroblasts of brown garnets up to 10mm in diameter. Higher grade scheelite mineralization often occurs with this unit but a few lenses encountered in the drill core were barren of mineralization.

9. Aplite Dykes - light grey to dark grey, fine-medium grained. When mafic minerals are more than 20%, the dykes or sills are granodioritic in composition. Quartz enriched fractures and veins carry euhedral scheelite crystals.

10. Granodiorite - dark grey, medium-coarse grained, mafic minerals varying from 5-20%. Trace of muscovite, plagioclase, chlorite and quartz. Quartz veinlets cut the intrusive and are rimmed with chlorite alterations. The quartz veins and veinlets carry minor amounts of scheelite and pyrite mineralization.

## Mineralization

Tungsten mineralization is in the form of scheelite, a calcium tungstate, $CaWO_4$ and is composed of tungsten trioxide 80.6% and lime 19.4%. The scheelite is found disseminated within the skarn, but in a few instances has been observed along silicified fracture planes.

Pyrite and pyrrhotite occur as disseminations and traces throughout the rock units. Traces of tin and molybdenite are rarely found in silicified alteration envelopes along fractures. Precious metal assays indicate a trace of gold in association with the quartz veins cutting metasediment and skarn units.

Occasionally arsenopyrite bearing quartz veins, similar in composition to those found in the gold-quartz vein fissure system, were intersected in several diamond drill holes.

Drill core assay sheets are located in Volume II.

Trenching - Garnet Skarn Zone

Ten trenches were excavated between June 10 and August 22, 1979. The minimum total volume removed was 4896.0 cubic meters or 6413.2 cubic yards.

The rock and frozen ground was removed by D-7 cat. Trench details are listed in Tables 2 and 2a.

The depth of frozen overburden varied greatly and in several instances proved to be deeper than originally estimated. The trenches could not be spaced at regular intervals along the mineralized zone because the overburden was too deep for D-7 cat trenching during the limited time available. This overburden depth became more of a problem along the contact to the northwest and limits the surface area that can be explored by this method.

The trenching has not been useful in acquiring fresh samples for a start in blocking out mineral reserves.

A summary of the geology is given in the trenching, mapping, petrographic and geology report of the Garnet Skarn Zone.

TABLE 2

SUMMARY OF ASSAY RESULTS FROM TRENCHING

GARNET SKARN ZONE

| Trench No. | Sample No. | Grade % $WO_3$ | Width (m) | Remarks |
|---|---|---|---|---|
| 2 | 78115 | 1.01 | 5.5 | Along the strike |
| 4 | 78116 | 0.41 | 0.5 | Chip sample |
| 4 | 78117 | 0.87 | 0.5 | Chip sample |
| 5 | 78119 | 0.19 | 5.0 | Along the strike |
| 5 | 78120 | 0.20 | 2.5 | Along the strike |
| 5 | 78121 | 0.01 | 2.0 | Along the strike |
| 9 | 96643 | 0.33 | 0.46 | Channel sample |
| 9 | 96644 | 1.79 | 1.9 | Chip sample |
| 9 | 96645 | 0.50 | 1.1 | Channel sample |
| 9 | 96646 | 0.85 | 0.35 | Channel sample |
| 9 | 96647 | 1.28 | 0.33 | Channel sample |
| 9 | 96913 | 2.95 | 0.50 | Channel sample |
| 9 | 96629 | 1.96 | 0.48 | Channel sample |
| 9 | 96631 | 1.33 | 0.55 | Channel sample |
| 9 | 96632 | 0.97 | 0.46 | Channel sample |
| 9 | 96637 | 0.32 | 1.08 | Channel sample |
| 9 | 96638 | 0.29 | 0.61 | Channel sample |
| 9 | 96915 | 1.20 | 1.0 | Channel sample |
| 10 | 96658 | 0.02 | 0.53 | Channel sample |
| 10 | 96659 | 0.08 | 0.43 | Channel sample |
| 10 | 96660 | 0.08 | 0.67 | Channel sample |

## TABLE 2A

## YARDAGE OF MATERIALS REMOVED BY D-7 CAT

## FROM TRENCHES AND DIAMOND DRILL SITES

## DUBLIN GULCH - 1979

| Trench No. | Claim Location | DIMENSION (m) Distance | Width | Vertical Distance | Volume $M^3$ | Volume $Yd^3$ | Operator | Date |
|---|---|---|---|---|---|---|---|---|
| 1 | MAR 8 | 52.8 | 4.2 | 0.83 | 184.1 | 241.1 | L. Haner | June 10, 1979 |
| 2 | MAR 8 | 161.0 | 4.1 | 0.83 | 548.0 | 718.0 | L. & B. Haner | June 10 & 29, 1979 |
| 3 | MAR 8 | 57.0 | 3.63 | 0.50 | 103.0 | 135.0 | L. & B. Haner | June 10 & 29, 1979 |
| 4 | DAVE 13 | 167.0 | 4.1 | 1.22 | 835.0 | 1094.0 | L. & B. Haner | June 10 & 29, 1979 |
| 5 | DAVE 13 | 86.0 | 4.1 | 0.9 | 317.0 | 415.0 | B. Haner | June 30, 1979 |
| 6 | DAVE 13 | 189.0 | 13.0 | 0.3 | 737.0 | 965.0 | L. & B. Haner | June 10 & 30, 1979 |
| 7 | DAVE 15 | 272.0 | 4.1 | 0.6 | 669.0 | 876.0 | L. & B. Haner | June 10 & 30, 1979 |
| 8 | DAVE 15 | 305.0 | 5.6 | 0.5 | 854.0 | 1119.0 | L. & B. Haner | June 10 & 30, 1979 |
| 9 | R.D.10 | - | - | - | 324.4 | 425.0 | B. Haner | August 22, 1979 |
| 10 | DAVE 13 | - | - | - | 324.4 | 425.0 | B. Haner | August 22, 1979 |
| TOTAL | | | | | 4896.0 | 6413.2 | | |

## GEOCHEMISTRY

### Introduction

Soil sampling was continued in 1979 on the new extensions of the Ray Gulch Grid and Dublin Gulch Grids. Sampling was also done along new grid lines on Tin Dome. Soil sampling along pace and compass traverses in Gill Gulch area was also done.

The 1979 results were combined with the 1978 results and contoured. The soil samples were analyzed for tungsten, tin, gold and silver. The grids and samples were plotted on 1:5000 scale topo maps. Rock chip samples were analyzed for tungsten, tin, gold and silver for the most part. If the results were significant the samples were then assayed. Rock chip samples taken from outcrops, trenches and dump piles are plotted on 1:5000 geology maps, 1:1000 geology maps and detailed 1:100 maps (usually trench or adit maps).

The statistical analysis done on the 1978 work applies to the 1979 work as was found when rough histograms and graphs were constructed. The graphs used in the 1978 report are used in this report.

The diamond drill core was assayed for tungsten and where it was felt necessary, tin and gold were also assayed. All samples (soil, rock chip, drill core) were sent to Chemex Labs in North Vancouver. Analysis procedure is described further on in the report.

### Detailed Grid Geochemi stry - (Maps 4 , 5 , 6 , 7 )

Soil sampling was carried out on the Ray Gulch Grid extension established in June of 1979. This grid trends southeasterly from the L10+000N baseline. The lines are 150 meters apart and start at L38+050E on the eastern end and finish at L36+700E on the western end of the grid. The soil is of residual origin due to lack of glaciation. From profiling done in 1978, no distinct soil horizons are observed. This soil is very gravelly and with heavy

minerals like scheelite, cassiterite and gold lying near bedrock, sampling was done using soil augers 1½" in diameter drive 1 meter into the soil. The sample was taken from the last 10cm on the auger. The samples were thus taken at a consistent depth and are consistent with techniques used in 1978. On this grid, sample spacing was 25 meters. This was done to help detect thinner bedded scheelite bearing skarn units below the soil. The 1978 survey on the Ray Gulch Grid indicated that the 50 meter spacing used might have been too wide in this particular geologic environment.

Soil sampling was also carried out on the 1979 Dublin Gulch Grid extension. This grid extends from L36+700E to the southwest and ends with L35+200E. The grid trends northwesterly from baseline 10+000N. The grid was put in to cover potential extensions of the gold fissure vein system on the 1978 grid. The grid crosses the granodiorite-metasediment contact. The granodiorite and quartzites are fairly uniform in their respective compositions. Sample spacing along the lines was 50 meters. Soil augers 1½" in diameter were driven 1 meter into the soil and the samples taken from the last 10cms. This method was consistent with 1978 techniques so that uniformity in data could be obtained. Varying overburden depth is the only factor that has a significant effect on the results in this area.

Six new compass and picketed grid lines were added to the Tin Dome grid in 1979. No cutting was done on the lines. The lines were extended to cover the small dome to the north of the two (east and west) main Tin Domes. Soil samples were taken at 25 meter spacings along the lines. Small tourmalinized breccia zones and thin bedded buff quartzites and black phyllites necessitated this spacing. Again a 1½" diameter soil auger was used to collect the samples from a depth of 1 meter.

Sampling was also carried out on other parts of the property and the interpretation and results are discussed under separate title within this report. Approximately 1600 soil samples and 470 rock ship samples were taken during the 1979 field season.

## GEOCHEMICAL SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

### ppm Ag, ppb Au, ppm W, ppm Sn

#### Sample Preparation (Silts, Sediments)

Sample materials are dried at 50°C and screened to -35 mesh. The screened portion is pulverized in a ring grinder to reduce particle size and also acts to homogenize the sample. This is required when tin and tungsten values are required.

#### Sample Analysis

#### ppm Silver

A 1 gm. sample is attacked with $HClO_4$-$HNO_3$, heating to fuming $HClO_4$. After dilution to volume with demineralized water and mixing, the silver content is determined by atomic absorption spectrometry with simultaneous background correction.

#### ppm Tungsten

An 0.2g. sample is fused with potassium pyrosulfate and leached in HCl. An aliquot is reduced with stannous chloride and quantitatively extracted with toluene-3,4-dithiol in amylacetate in a water bath. The tungsten dithiolate is dissolved in kerosene and the concentration determined colorimetrically against tungsten standards carried through the same extraction procedure.

ppm Tin

A 1 gm. sample is sintered with ammonium iodide and the stannic iodide volatilized trapped on a cool surface of the test tube. After leaching with HCl and reduction with ascorbic acid, the tin is quantitatively extracted into methylisobutylketone containing trioctylphosphine oxide. The tin concentration is determined by atomic absorption spectrometry against tin standards extracted by the same procedure.

ppb Gold

Five grams of pulverized material is digested to dryness twice with Aqua Regia. The residue is baked and dissolved in 25% HCl. Gold is extracted into MIBK as the gold bromide complex. The extract is analyzed for gold by atomic absorption techniques. Detection limit = 10ppb.

## Data Compilation

Sampling procedures were the same as those for 1978. All data was recorded at the sample site on a 50 column card sheet. This sheet could then be keypunched. In 1978 the data was keypunched and computer sorted. This was not done in 1979 because of fewer samples taken and the fact that the computer programme was not able to adequately analyze the data statistically In 1978 the analysis had to be done by hand after an attempt was made with the G.E. Computer programme. The problem was that the programme was only capable of processing a randomly distributed material and the minerals analyzed at Dublin Gulch are not randomly distributed.

The 1979 data was roughly analyzed by hand and it confirmed the distributions plotted in 1978. The analysis determined the background levels, threshold break and up to 3 levels of significant anomalies. The graphs plotted in 1978 apply to the 1979 data and are included in the descriptions of each element. Semi-logarithmic paper was used and parts per million or billion are located on the X axis and cummulative percent on the Y axis. Plotting the data this way showed the breaks in line slope more readily. All sample results are plotted on the various geochemistry and/or geology maps. Soil sample lists are not stored within the report.

## Interpretation of Soil Geochmical Data and Recommendations

(4 elements plotted and contoured on Maps 4 , 5 , 6 and 7 )

Abbreviations: ppm = parts per million
ppb = parts per billion.

## Tungsten (See Figure 3 and Map 4 )

The graph of Figure 3 indicates a threshold break for tungsten in soil samples is 21 ppm, 2nd order anomalies 30-68 ppm and 3rd order anomalies greater than 68 ppm.

K&E SEMI-LOGARITHMIC 3 CYCLES X 60 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

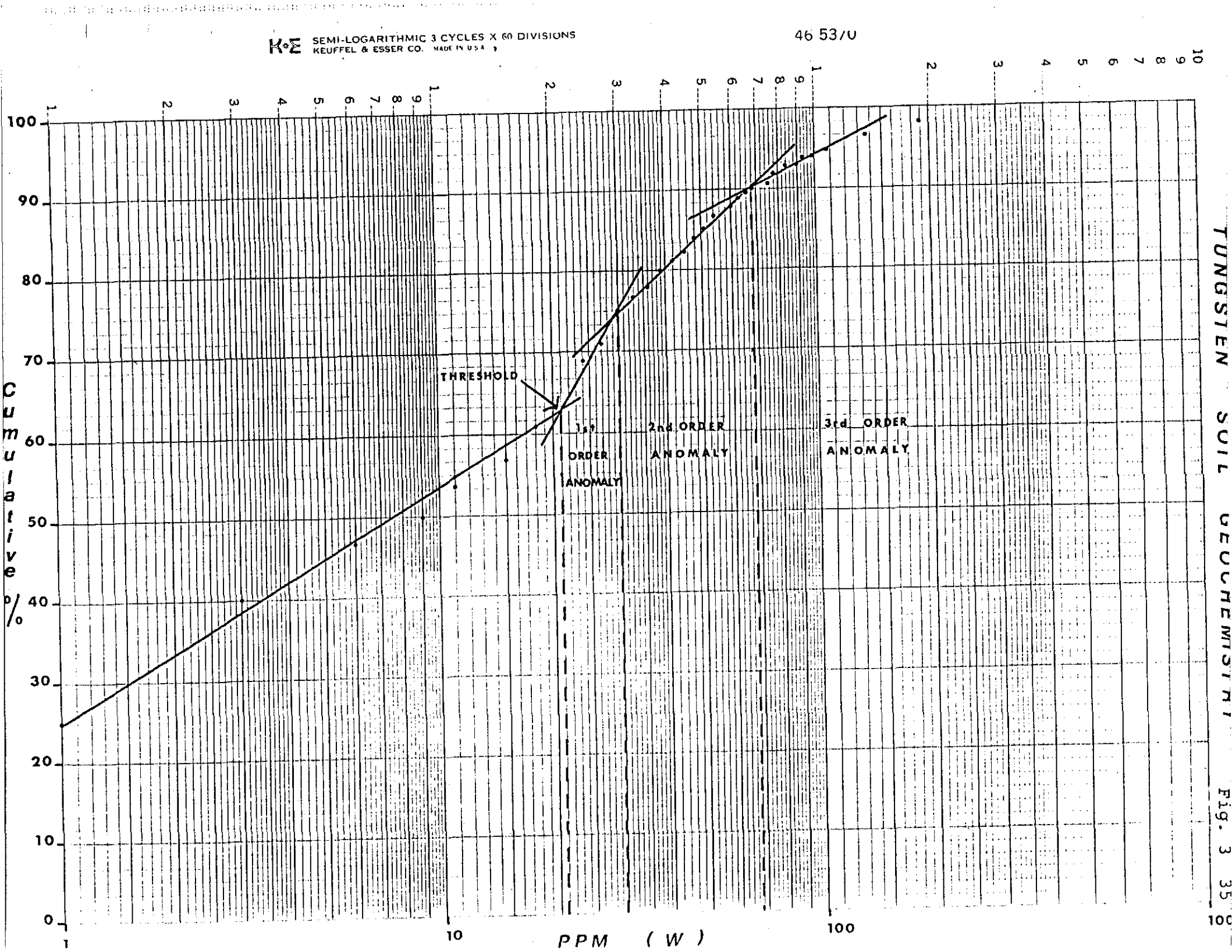



Fig. 3 35

The contours on the new 1979 grid extensions (Dublin and Ray Gulch) continue to reflect the northeasterly trending fabric of the 1978 grid areas.

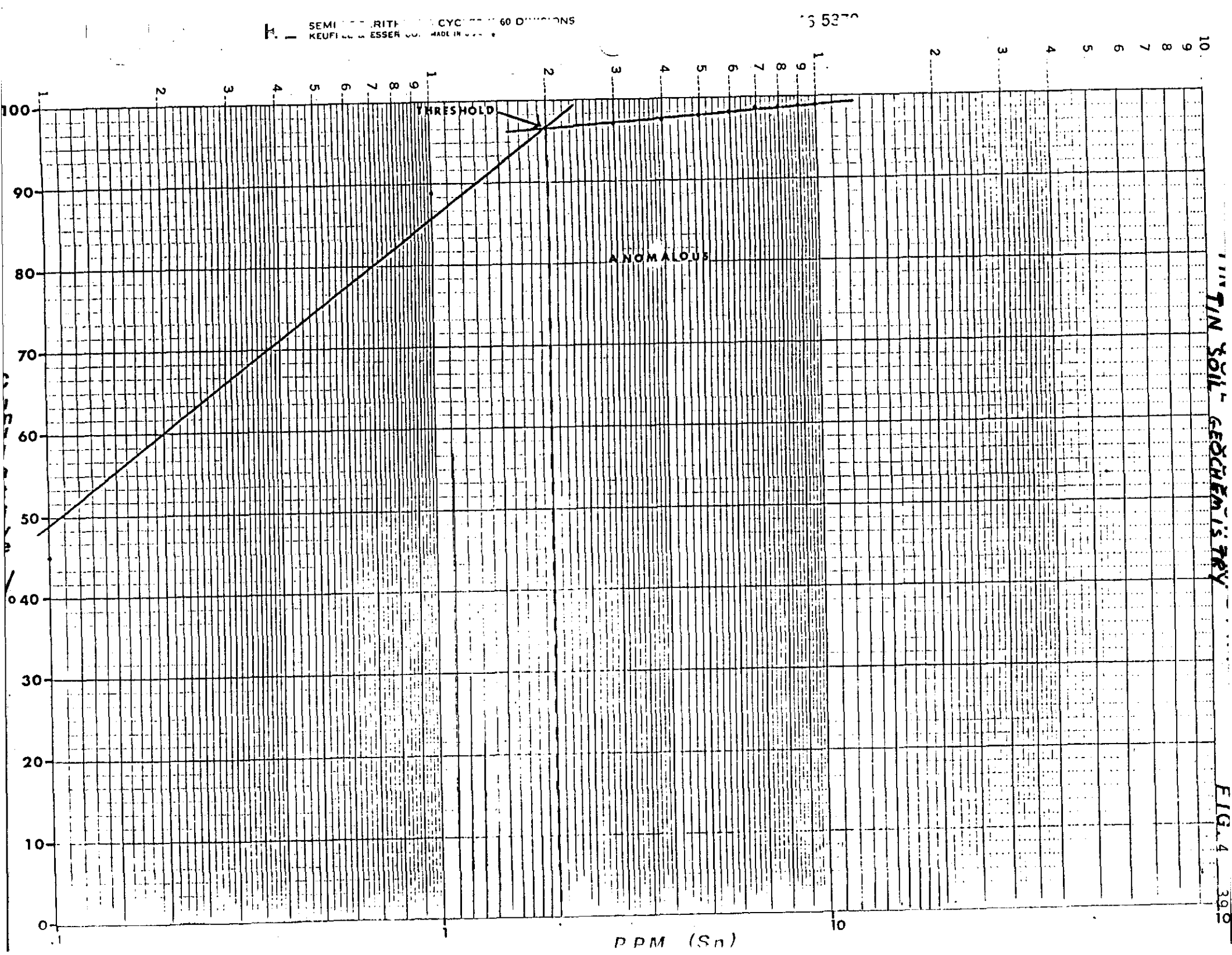
A large anomaly ranging from 1st to 3rd order trends northeasterly parallel to baseline 10+000N on the 1979 Dublin Gulch Grid Extension. The anomaly is found between L35+350E and L36+700E and stations 10+250N and L10+800N on these lines. This is a strong anomaly in that even with lower values, it extends for over 1400 meters. It obviously connects (but not contoured in) with the large anomaly on the 1978 grid. It appears to reflect the quartz veining trend in underlying granodiorite rocks. If the contact between the intrusive and metasediments occurs near this anomaly, the contours may also be paralleling and reflecting the southwestern extension of the gold-quartz vein fissure system found in 1978 on the original Dublin Gulch Grid. The Beaver and Aurum adits explored in 1979 and described under a separate title, are located in this system on the old grid. It is recommended that trenching across the anomaly be done in 1980. The grid lines could be used as section lines across this anomaly.

Two other significant 2nd and 3rd order anomalies are found on the 1979 Dublin Grid Extension. One is located as a narrow zone lying between lines L36+100E and L36+800 and stations L11+300N and L11+700N on these lines. Although separated by an area of no recorded values between the 1978 Dublin Grid Extension it appears that the anomaly would connect with the 1978 anomaly. The anomaly is not as strong to the southwest and this may reflect scheelite bearing veins from the deeper buried outer limits of the scheelite bearing quartz monzonite stock found at the junction of Olive Gulch and Dublin Gulch.

Although considered less likely by the writer, the anomaly may reflect a weaker, but parallel system of fissure veins having the same origin as the gold-quartz vien fissure system found up slope. The other anomaly is N.W. and parallel to the anomaly just discussed. It is located between lines 36+250E and 37+800E and between stations 11+900N and 12+100N on these lines. One short trench (100 meters) should be cut along L36+550E between stations 12+000N and 12+100N.

No tungsten anomalies are indicated on the Tin Dome Grid. This signifies the different geologic and geochmical environment of this particular area. No follow up sampling for "tungsten" is required here.

On the 1979 Ray Gulch Grid Extension several first and second order anomalies are found. The anomalies are, for the most part, narrow and of short extent. They do not usually extend across more than two lines. From Map - it can be seen that the anomalies are found on the steep south facing slopes. Scheelite bearing skarn units are exposed along cliffs on this slope. The units are very thin in this area and range in thickness from 5cm to 60cm. On rare occasions they may reach 2 meters in thickness. The anomalies are good indicators of skarn units in this area, because the soil is derived from weathered talus emanating from the small rock cliffs. The three most notable anomalies are found on lines L38+850E, L37+000E, and L37+300E between stations 9+650N and 9+250N. Another notable anomaly is found near baseline 10+000N between lines 37+300E and 37+900E. It ranges from 1st to 3rd order in strength.




TIN SOIL GEOCHEMISTRY

FIG. 4

An elongate anomaly ranging from 2 ppm Sn to 46 ppm Sn crosses between and includes L35+825E to L36+550E. Along these lines, the anomaly is found between stations 13+100N and 13+250N. This area forms a saddle between East Tin Dome (see map 13) and a dome located to the N.W. It is believed by the writer that the saddle is caused by erosion of a fault (thrust) zone. The tin anomaly indicates that the fault is tin bearing and may have acted as a channel way for hydrothermal fluids emanating from a possible buried cupola. The loose rubbly nature of the rock could form thick overburden. This particular area should be considered a prime drill target after the holes spotted by W.R. Howard have been drilled. Trenching would be too difficult.

Located just southeast of the anomaly described above are two bulbous shaped anomalies that range from 2 to 32 ppm Sn. The anomalies lie between lines 35+825E and 36+375E. They are found between stations 12+750 and 13+100N. These two anomalies are most likely transported downslope to the N.W. and N.E. respectively from the main centre of brecciation. The eastern anomaly should be tested with proposed D.D.H. 80-2 and 80-3 as outlined in W.R. Howard's Tin Dome Report. The western anomaly should be tested with a side cut trench trending northwesterly from the "ring road" along line 35+975E. (See map 11 ).

Two more significant anomalies ranging from 2 ppm Sn to 32 ppm Sn lie along lines 36+125E and 36+250E between stations 12+200N and 12+700N. The anomalies are most likely transported, to some extent, downslope from their source. The source area may be cassiterite bearing tourmalinized breccia zones or fault zones that are parallel or subparallel to the breccia zone located N.N.W. of this area. Cassiterite bearing quartz vein material is occasionally found as float. Some cat trenching along line 36+250E between stations 12+200N and 12+700N should be attempted. A problem of thick overburden in this area will likely be encountered, thus limiting the extent of trenching. (See map 5 ).

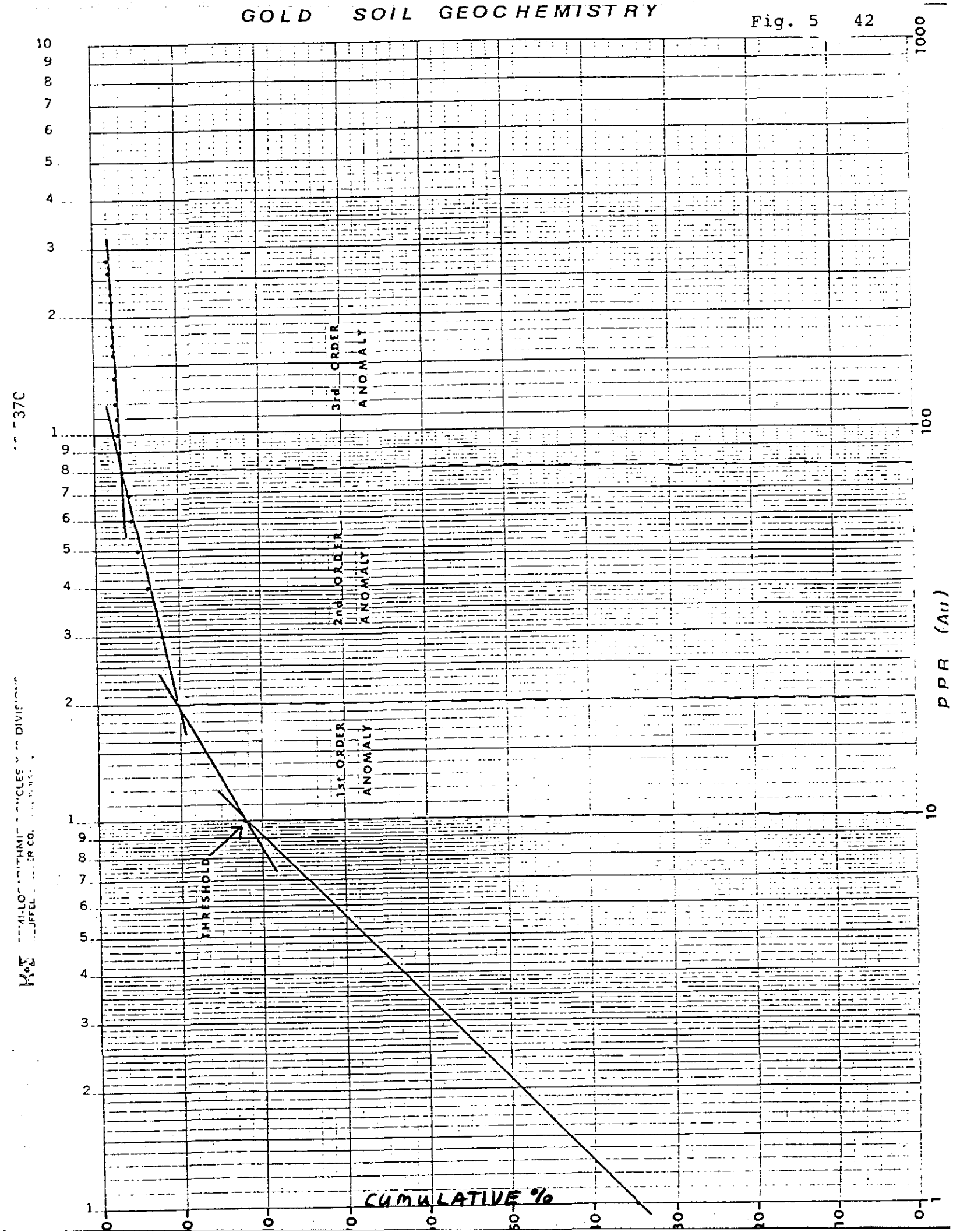
On the 1979 Dublin Gulch Grid Extension, no tin anomalies of significance occur. A few single sample anomalies that reach a high of 6 ppm Sn occur and are occasionally coincident with 1st order tungsten anomalies.

The 1979 Ray Gulch Grid Extension is also void of any signficant tin anomalies. The highest values reach 3 ppm Sn. The weak anomalies are either elongate in the east-west direction or single sample circular shaped. The elongate anomalies are weakly coincident with tungsten anomalies. This may be due to the presence of aplitic dykes in the vicinity of scheelite bearing skarn units.

Gold (See Figure 5 and Map 7 )

The graph on Figure 5 has 3 distinct breaks in slope and indicates that the background values are less than 10 ppb Au. The threshold break is at 10 ppb and 1st order anomalies range from this value to 20 ppb Au. Second order anomalies range between 20 and 80 ppb Au while highly significant 3rd order anomalies include all values greater than 80 ppb.

A 3rd order anomaly described in the 1978 report (p.73) on Tin Dome was closed off by the sampling on the new grid lines location in 1979. The anomaly is located on L36+125E near station 12+900N. This anomaly is significant because it has its highest values in the saddle area and is coincident with the western end of an elongate tin anomaly described previously. This strengthens the argument for the existence of a fault zone that may be carrying tin and gold bearing quartz veins and breccias. Trenching in this area should be done as described earlier. Several small single sample anomalies are found on the Tin Dome grid and they may reflect small quartz veins at depth. They are not considered worthy of follow-up in 1980.


GOLD SOIL GEOCHEMISTRY
3rd ORDER ANOMALY
2nd ORDER ANOMALY
1st ORDER ANOMALY
THRESHOLD
CUMULATIVE %
PPB (Au)
1000
100
10
1

On the 1979 Dublin Gulch Grid Extension, several large gold anomalies are present. They all lie parallel or subparallel to each other and trend northeasterly in the same manner that tungsten does. Virtually all the large anomalies range from 1st to 3rd order levels of significance. The single sample anomalies are made up of 50% first and second order anomalies and 50% third order anomalies.

Although the difference is subtle, there appears (to the writer) to be two separate types of anomalies. The difference is only one of width which suggests a variation in source area vein density. From station 11+000N to the end of the grid near Dublin Creek in the N.W. and between lines 35+200E and L36+550E, the anomalies are long and narrow (less than 175 meters). There are two possible sources of these anomalies and they are:

1. Narrower veins and a wider spaced distribution of the veins occurs and are of the same type and origin as the "gold quartz vein fissure system" found up slope to the southeast, or

2. there are quartz veins (although not as extensive as the gold fissure system) emanating from the buried extremities of the scheelite and gold bearing quartz monzonite plug located at the mouth of Olive Gulch.

The writer believes (at this time) that the second description applies because vein rubble in this area, to date, has little arsenopyrite, pyrite or marcasite sulphides as does the gold quartz vein fissure system. There is a 3rd order gold anomaly located over the quartz monzonite. This anomaly was found in 1978 and there is a subtle alignment with the 1979 anomalies. Gaps between these anomalies do not tie it in completely leaving the option of the first description open if good vein exposures are located in 1980 and their mineralogy matches that of the "gold quartz vein fissure system". It is recommended that a long cat trench be cut along L35+500E from station 11+250N to 11+800N (see map 14 ). Geologic mapping of all features and channel sampling should be done on the trench.

Strong 1st to 3rd order anomalies occur to the southeast of those just described and lie between baseline 10+000N and station 11+200N. Between these station limits, the anomalies extend northeastward from L35+200E to L36+400E. The anomalies are considerably wider than the ones lying to the northeast on the same grid. Old adits found within the anomalies indicate the source is a set of quartz veins belonging to the "gold-quartz vein fissure system". The mineralogy is the same as the veins found in the Aurum and Beaver adits described further on in the report. An alignment of these anomalies with the single large 3rd order anomaly discovered in 1978 between lines 37+300E and 38+800E is quite evident and parallels the "identified" area of the gold-quartz fissure system and the metasediment/ granodiorite contact. There is uncertainty about the cause for the discontinuity between the 1978 and 1979 anomalies between lines 36+400E and 37+300E. A fault may exist in this area but has not been identified to date.

It is recommended that a series of cat trenches be cut across the anomalies along lines 35+200E, 35+250E, 35+500E, 35+650E, 35+800E, 35+950E, 36+100E, 36+250E, 36+400E and 36+550E.

On the 1979 Ray Gulch Extension Grid, two significant 3rd order anomalies and several small 1st to 3rd order anomalies are found. The small anomalies, although exhibiting high values, are considered to be not worthy of further investigation at this time. They are displaced slightly from their source areas of aplitic and weakly veined dykes. One of the large anomalies is found extending across L36+700E and L37+000E between stations 10+450N and 10+250N. The other significant anomaly lies between and crosses lines 37+300E and 37+450E. The two anomalies line up in a northeasterly trend, but are separated by low values along L37+150E. A fault may be

present in this area. These anomalies are displaced downslope slightly from a parallel to sub-parallel set of gold bearing aplitic dykes or sills.

It is recommended that several channel samples be taken across the dykes to acertain their gold content.

Silver (See Figure 6 and map 6 )

From Figure 6 it can be readily observed that background values for silver are .1 ppm and less while the threshold break is at .1 ppm Ag. First order anomalies range from 0.1 to 0.2 ppm Ag and 2nd order anomalies are greater than 0.2 ppm Ag. Because of such low background values, contour intervals were started at the 2nd order level of 0.2 ppm Ag.

The Tin Dome Grid exhibits yet another anomaly (silver) coincident with tin and gold in the saddle area near the northwest end of the grid. The silver anomaly is elongate but somewhat discontinuous along the trend of the suspected buried fault zone. Three other anomalies having values ranging from 0.2 ppm to over 1 ppm Ag are found primarily along L36+250E. These are due to small greenish coloured gouge zones that are related to tin and tourmaline bearing quartz veins. The silver values are not high enough to warrant follow up at this time.

The 1979 Dublin Gulch Grid Extension shows widely dispersed low value 1st order anomalies. The anomalies on the northwestern half of the grid from lines 35+200E to 36+700E between stations 11+200N and 12+100N are wide and do not show any "real" preferential orientation to structure and veining. The broad anomalies may just be reflecting a more veined area as opposed to known sparcely veined areas where silver is virtually absent.

From baseline 10+000N to station 11+200N on all lines between 35+200E and 36+700E there is the familiar dominant northeasterly trend that is coincident with the gold and tungsten anomalies associated with the gold-quartz vein fissure system. The geochemistry indicates that one could anticipate low and sporadic silver content in this vein system. This has been proven out to date with results from underground and trench samples cutting this system. Hopefully with the trenching scheduled for this area in 1980, better silver values can be obtained. Nothing specific is recommended for this area with respect to silver other than all the trench samples taken in 1980 will be assayed for silver.

The 1979 Ray Gulch Grid Extension contains several elongate and parallel 2nd order anomalies. Only one anomaly has over 1ppm Ag and is located on L37+300E at station 9+825N. These anomalies although rather non descript in their size and intensity reflect the presence of aplitic dykes or sills. The anomalies themselves do not warrant follow-up work. Where the anomalies coincide with tungsten, tin and gold anomalies, channel samples of outcrop that occur in the vicinity will be assayed for silver.

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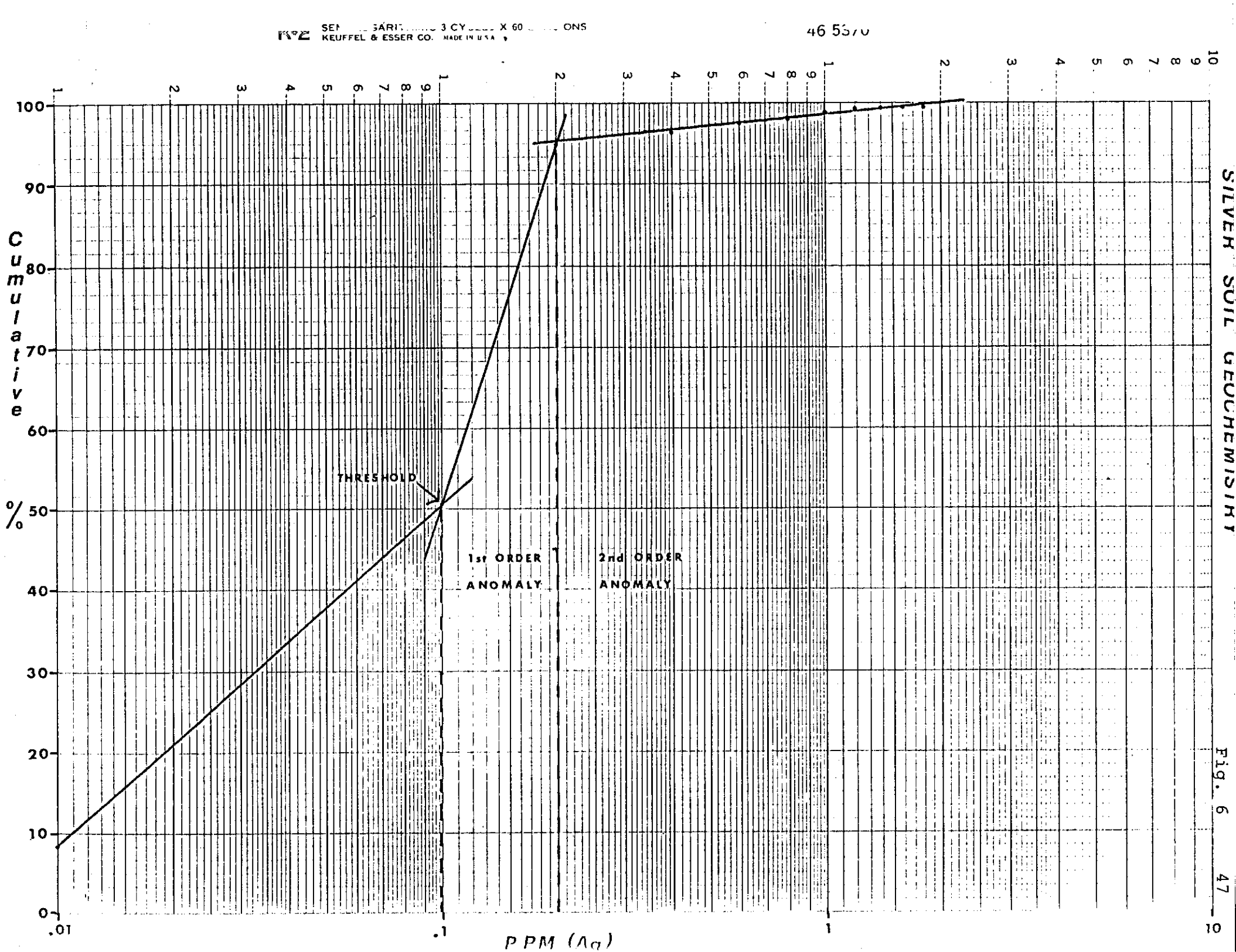


SILVER SOIL GEOCHEMISTRY

Fig. 6

## GEOPHYSICS

### Magnetometer Survey (Map 8 )

A magnetometer survey was conducted along the metasediment/intrusive contact in the vicinity of the baseline between lines 39+850E and 36+700E. These lines extend both north and south of the baseline.

The aim of the survey was to aid in the geological interpretation of this overburden covered area. It was felt that a variation in the magnetic susceptability of any major rock units would aid in outlining more precisely the buried contact and thus lead to the delineation of potential mineralization.

### Field Procedures

A Scintrex fluxgate magnetometer model No.321 was used for this survey. This is a hand held instrument with a sensitivity range of $\pm$ 100,000 gammas. The instrument corrects automatically for temperature variations. Thus corrections of readings were only necessary to compensate for diurnal fluctuations in magnetic field.

This correction is based on the assumption that each survey loop has a linear variation over time. Each reading was corrected as per the following formula:

$$\text{Reading} + (\text{Reading}_{\text{initial}} - \text{Reading}_{\text{final}})\left(\frac{\text{Time of reading}}{\text{Total time for the loop}}\right)$$

The instrument was zeroed for the area at station 38+850E (on the Dublin Gulch baseline) and was given a value of 200 gammas. Sections of the baseline from which loops were run, were surveyed and corrected for diurnal variation so that each loop could be easily corrected.

These stations were actually the intersections of the crossline with the baseline. Readings were taken at 50 meter intervals along the baseline and the crosslines. Where a wide range between high and low reading were discovered, the spacing for readings was closed up to 25 meters.

Due to intense sun spot activity only a few "quiet" days were available during the summer. Even during the quiet periods, wide fluctuations occurred and the lines had to be resurveyed.

Magnetometer Survey Results

The corrected readings were plotted on Map 8 at a scale of 1:5000. Readings were plotted in gammas and contoured using an interval of 25 gammas. In the vicinity of Line 36+700E contour intervals of 55,200 and 500 gammas were added because of the increased range in the readings. The readings ranged from 65 gammas to 1750 gammas. Eighty-five percent of the reading fell between 185 and 200 gammas. No sharply defined areas of high magnetic susceptability were found except along Line 36+700E between the baseline 10+000N and station 9+400N. This may outline the southwest contact of the metasediments with the granodioritic stock. Mineralized skarn float rocks have been found in this area and have assays ranging between 0.35% and 0.71% $WO_3$.

Recommendations

In view of the findings on L36+700E, the grid should be extended farther along the baseline to the southwest. Detailed geologic mapping, geochemical soil sampling and more magnetometer work are recommended in this area.

Part II

# Gill Gulch Report - Ungrouped Smoky Claims

by W.R. Howard

# GILL GULCH REPORT

## RECOMMENDATIONS FOR EXPLORATION

Economic tin, antimony, silver or gold mineralization(s) may be present on the south bordering ridge of Gill Gulch. Numerous old cat trails and trenches, and the well explored Rex antimony-silver occurrence further to the south (Ref. G. Guttrath) attest to the desireability of continued exploration in this area.

Three groups of trenches are centered about and in a granitoid intrusive that cuts variegated metasediments. Channel and grab samples from the west two groups returned encouraging values of one or more of tin, antimony, silver and gold.

The highest values obtained were:

1900 ppm Sn, 0.56 oz/ton Ag - both from Q96623 (0.85m)
0.7690 Sb from Q96621 (grab sample)
0.078 oz/ton Au with 0.71% Sb from Q96618 (1.05m)

It appears that the intrusives are the source of mineralization at Gill Gulch. They are salmon pink, medium to coarse grained granitoids, commonly prophyritic with feldspar phenocrysts. Some intrusives are nearer to being sub-volcanic (hypabyssal) prophyries with corroded quartz phenocrysts and large feldspar phenocrysts. Clearly the environs of the intrusive should be thoroughly prospected. However, not every intrusive appears to be a mineralizer - the easternmost on the south ridge so far is of little interest.

GEOCHEMISTRY

Geological mapping at a scale of 1:1000 and thorough prospecting is recommended for the red outline area on Map 9 . A small grid could be constructed with a cut baseline running W-E along the ridge top. Flagged or blazed cross lines should be spaced 100m apart with stations every 50m. Soil sampling on this grid would help to further delineate areas of interest.

Stibnite has so far not been recognized at Gill Gulch, but rock encrusted with a pale yellow secondary mineral often contains a fine grained, sheared or brecciated metallic mineral high in antimony. This useful propecting guide led to discoveries at localities Q96617, Q96618, Q96620 and Q96623. At locality Q96622 limonite impregnates shattered quartzite and geochemed at 85 ppm Sn.

Reconnaissance soil and stream sediment geochemistry revealed several areas anomalous in one or more of antimony, tin or silver. Tungsten and bismuth are below detection. These elements should not be sought at Gill gulch or used as geochemical pathfinders. However, mercury ppb values are slightly above the regional level (see G.S.C. Open File No. 518-520). Perhaps mercury geochmistry can be useful as a pathfinder in (Map 10) Gill Gulch, particulary for gold. The value of analysis of other elements, such as arsenic (in particular), zinc or lead, as pathfinders for tin, antimony or silver mineralization should not be overlooked.

On the geology geochemistry map 9, red underlined values are deemed to be anomalous in antimony ( 15 ppm); green underlined values may be anomalous in tin at 75 ppm. There is a questionable correlation between these elements - as to what may be expected if tin mineralization is

distinctive from antimony-silver (and gold?) mineralization; otherwise antimony may be a more widely dispersed pathfinder element occurring with cassiterite. Fifteen lettered sites are marked on the geochemistry map at anomaly locations. These are recommended for bulk soil sampling for heavy mineral separation and subsequent geochemistry for Sn, Sb, Ag, Au, Pb in this stated order of preference. For Field procedure and laboratory requirements refer to the Tin Dome report by this author.

At each of sites A to F, all on relatively flat terrain, four bulk samples should be collected on the corners of a 10m square grid. Analysis results will delineate areas suitable for cat trenching as well as the "best" trend of a future trench. Sites G to J to the north are of marginal importance. Only one bulk sample at each site is recommended. At sites K to O significant cassiterite appears to be entering Gill Creek from the north valley. Four bulk samples should be collected at each site here, 30m apart on north-south lines which run roughly uphill. This area may be difficult to trench because of thick alluvium accumulated by southward slumping. The proximity of Tin Dome to Gill Gulch implies that similar prospects may be found on either. Similar strategies of exploration should be undertaken. Antimony geochmistry may be useful as a pathfinder for antimony-silver mineralization on Tin Dome, conversely, tin may occur with attendant tourmalinization of country rock or with limonite-quartz-tourmaline breccia in fault or shear zones at Gill Gulch.

A general reconnaissance of the rest of Map 9 , perhaps including Sheets 3 and 4 (McElhanney Map No. references) at the 1:5000 scale may discover prospects similar to Tin Dome or Gill Gulch. Helicopter support for stream sediment sampling or ridge top soil collection is advisable.

Part III

# Tin Dome Report - 1979 - Ungrouped D.G. Claims

by W.R. Howard

# TIN DOME REPORT

## GEOCHEMISTRY

Soil sample analysis from both the 1978 and 1979 programmes reveal several significantly anomalous areas of tin and one area of gold on Tin Dome. Economic mineralization may be slightly upslope from these areas. Prior to any trenching by bulldozer, further geochemical sampling is recommended.

## HEAVY MINERAL SAMPLING

Sites A to I have been marked on the Tin Dome 1:1000 geology (Map No. 11 ) map at tin or gold geochemical anomaly locations. These sites are recommended for bulk sampling of 'C' horizon soil and heavy mineral separation, with subsequent geochemical analysis of Sn, Au, Ag, Sb, As and then possibly Pb, Hg and W. About one gram of heavy mineral separate is required for each geochemical analysis, and thus, a list of preferred analysis is advisable. Further, the heavy minerals should be determined, notably any cassiterite, gold, tourmaline, fluorite(?) or galena. The leftover portion of heavy mineral separate can be kept for any future assays.

## FIELD COLLECTION AND ANALYTICAL PROCEDURE

Two or three kilogram samples of soil are necesary for each heavy mineral separation. It is suggested that four samples be taken at each site, at the corners of a 10m square to facilitate orientation of a bulldozer trench. Each sample should be weighed to 1 kg for estimation of the concentration of heavies. Organics and clay may then be washed out, and the sample screened to remove cobbles and pebbles. Preliminary field concentration to 0.4-0.5 kg of sample is required.

Use of a Superpannen allows a standard procedure to be followed. Each sample should again be weighed before shipping to Chemex. Mr. H. Bickel of Chemex can be consulted regarding laboratory procedure.

## BULLDOZER TRENCHING

If geochemical results warrant, anomalies could be stripped or trenched by cat. Other sites recommended for trenching prior to or in connection with diamond drill site preparation are:

1. The area of DDH 80-2 and H. Arik's 1000 ppm Sn result; A 70m trench trending west to east.

2. The area of another 1000 ppm Sn value by H. Arik in the vicinity of picket 5-8A, but between two NE trending trenches; A 50m trench trending west-east.

3. At picket 7-2 a 30m trench trending W-E should explore the area of channel sample Q-21, of grey-green residual soil assaying 0.05% Sn. Stripping could be part of site preparation for DDH 80-3.

4. A northern extension of the large stripped area just east of West Tin Dome summit is recommended. Here channel samples Q-07 and Q-53 assayed 0.22% 0.32% Sn respectively. The stripping could be part of the site preparation of DDH 80-1.

## GEOLOGY SUMMARY

Rock types of Tin Dome are predominantly low grade phyllites and quartzite mylonites, black phyllite is most common.

In nearly all rock exposures two cleavages are evident; this and the recessive nature of the argillaceous metasediments account for a lack of outcrop. Often a lineation formed by the intersection of the two cleavages is prominent, causing some exposures to break into pencil-like fragments. Often common linear structures are minute striations gradational to cm sized fold axes on foliation planes.

White 'bull' quartz veins stained with limonite are abundant along the ring road in the west of the map area. These veins are attributed to a late-stage hydrothermal episode, and are barren of tin or tungsten mineralization and thus not thought to be an exploration target.

TOURMALINIZED ZONES (Map 12)

Tourmalinized black phyllites and minor quartzite mylonites have been exposed by stripping just east of West Tin Dome. It is significant that the form of the tourmalinized and shattered zones are fold-like; limbs are attenuated, hinge zones are thickened, and discontinuous cross-shears and nebulous extensions exist.

Measured minor fold axes and crenulation lineations trend southeasterly (about 125°) and plunge gently (about 15°). One measured axial trace strikes 132°. The foliation strikes about 115° dipping 20°to the NE or SW.

Cassiterite is a minor constituent of these tourmalinized zones on the surface. Assays of channel samples average 0.06% Sn with the highest 0.32% Sn.

The tourmalinized zones are a splendent dark purplish-green when fresh, but dull greyish-green when weathered. Cellular limonite and iron staining has been formed from the oxidation of pyrite. Limonite and quartz often binds partially tourmalinized rocks at the fringes of these zones. J. Morin of Indian and Northern Affairs, Whitehorse, whilst visiting Tin Dome noticed the presence of numerous discontinuous bull quartz lenses and referred to one example where quartz boudins are enveloped by tourmalinized rock. He suggested that this is an indication that at depth bull quartz with minor cassiterite may core the main tourmalinized zones.

## THE MAIN BRECCIA ZONE

An extensive zone of limonite impregnated black phyllite and mylonite breccia, cemented by quartz with uncommon tourmaline is a main structural feature of Tin Dome and highly significant in exploration for tin. Two northeasterly trending trenches expose numerous breccia localities on the north east side of East Tin Dome. Connecting these up with breccia occurrences on the ring road indicates that the zone extends for at least 200m.

If a thrust fault striking $07^{o}$ and dipping $35^{o}$ NE is a related structure (perhaps a foreshortened closures of the hinge of a major fault?) then the breccia zone may extend for 350m.

## REPORTED TIN MINERALIZATION ON TIN DOME

From placer workings, tin pebbles of fair size - to 2.5 lb and assaying over 50% Sn have been found. The pebbles are dirty light brown to green, consisting of angular fragments of quartzite and black phyllite, banded by a matrix of quartz, chlorite, cassiterite and tourmaline (Thompson '44). This author presumes that these are examples of economic tin mineralization associated with the breccia zone.

Cassiterite is difficult to identify in the field. What lode mineralization that has been reported, occurs as yellow to brown aggregates of finely crystalline cassiterite, of microscopic to at the most 2mm crystal size.

It is deemed essential that a field test for tin be used in the 1980 season. Tin minerals in contact with diluted HCL acid in which zinc is immersed become coated with silvery coloured metallic tin.

Tourmaline may be part of the ore paragenesis and all occurrences are worthy of thorough examination for cassiterite. Needles, rossettes and fibrous aggregates of tourmaline ranging from tan through blue-green to brown often occur embedded in, or stained with, limonite.

DIAMOND DRILL HOLES

The positions and orientations of three exploratory drill holes are marked on the geology map. Two of these holes test areas of tourmalinization, on the breccia zone:

DDHT 80-1 - Excellent exposures of tourmalinized black phyllite on West Tin Dome are a prime exploration target. A hole bearing 215° inclined 70° from the horizontal, about 10-20m back of Q-53 may encounter good tin mineralization.

DDHT 80-2 - This proposed hole would test an extensive zone of limonite impregnated phyllite breccia. The site of a >1000 ppm Sn rock sample collected by H. Arik (A-337) with significantly high ppm values of Cu, Pb, Zn and As is suggested as a suitable location along the breccia zone. Two cleavage planes appear with about equal frequency in this area: one striking 45° dipping 25-30° SE, and the other striking 145° dipping 30-35° NE. Thus, for maximum core recovery, the orientation for 80-2 should be bearing 90° and inclined at 70°. This is complimentary to the intersection of the area of rock >1000 ppm Sn and the breccia zone.

DDHT 80-3 - Is the most tentatively suggested drill hole. First greenish residual soil near picket 7.2 assaying 0.05% should be explored by stripping. Assuming similar bedrock structure as for 80-2, a drill oriented bearing 270° at 70° inclination may intersect tourmalinized rock or breccia zones parallel to the main breccia zone.

Part IV

# Report on 1979 Fieldwork and Geology of the Dublin Gulch Gold-Quartz Vein-Fissure System. Ungrouped Claims

by Stanley C. Bartlett B. Sc.

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# INTRODUCTION

## Terms of Reference and Scope of Report

Dublin Gulch has long been recognized as a major gold-scheelite-cassiterite placer deposit in the Yukon Territory. Recently Canada Tungsten Mining Corporation Limited has taken an interest in the bedrock geology of the area in an attempt to evaluate the economic potential of the metalliferous source loads for the placer deposit. After acquiring favourable ground by optioning or by staking during the winter and spring of 1978, work began later in the same year on a scheelite bearing skarn at the head of Dublin Gulch and on a cassiterite-bearing fault zone on Tin Dome, north of Dublin Gulch. Only a soil geochemistry survey was performed over the area now recognized to be underlain by the gold-quartz vein-fissure system. This survey delineated a zone of anomalous gold values which served as a guideline to the 1979 program. A 1979 soil geochemistry survey extended this zone to the west and to date this zone remains open to the west. On August 11th, 1979, the writer began field work on the gold quartz vein-fissure system and continued to August 30th, 1979. Sampling was continued by geological assistants into early September, 1979. This report is a result of this field work and the conclusions drawn from the collected data. Recommendations for exploration during the 1980 field season are also included.

## Location and Access

Dublin Gulch is located in central Yukon approximately 40 air kilometers northeast of Mayo. The gulch is centered at approximately 64° 02'N latitude and 135° 50'W longitude. The property is roughly 90 kilometers by road from Mayo, 50 kilometers by all weather road to the South McQuesten River Bridge and 35 kilometers by a rough gravel road which runs along Haggart Creek to the camp.

The gold-quartz vein-fissure system occurs on the south side of Dublin Gulch and crops out sporatically in a northeast-southwest trend over 3 kilometers from Suttle Pup in the southwest to the head of Dublin Gulch in the northeast. Several old

roads lead from the camp to the early workings and latest bulldozer trenches.

Since slopes in the area are moderate most areas of interest are accessible by bulldozer. A few areas, particularly the old STEWART and CATTO Group, are accessible by 4x4 truck.

Topography

In the Dublin Gulch area flat plateaus and rolling hills are dissected by a network of creek gulches and pups. The southwest trending Dublin Gulch system is typical of the area having a main gulch with several tributary gulches and pups. Dublin Gulch forms a major subsystem of the Haggart Creek drainage system which flows southward into the South McQuesten River. Elevations in the area range between 800 meters at the mouth of Dublin Gulch and 1654 meters at the Potato Hills. Within the area affecting the gold-quartz vein-fissure system elevations range between 1050 meters in Dublin Gulch north of the STEWART and CATTO Group and 1419 meters south of the old BLUE LEAD Group. Slopes are moderately steep but are locally steeper within the granitic plutons. The showings are generally confined to the ridges between the tributary gulches and pups on the south side of Dublin Gulch where they are exposed in trenches and underground workings. An exception to these are the workings found on the old SHAMROCK Group situated north of Dublin Gulch and south of Carscallen Pup.

History

The first report of mining activity in the Dublin Gulch area stems from the gold rush days of the latter part of the last century. Placer gold was discovered in Haggart Creek and Dublin Gulch in 1898 and 1899. Prospecting in the hills and creeks within the Dublin Gulch System led to the discovery of several showings which were subsequently staked. In 1907 J. Stewart and Dr. Wm. Catto staked several showings west of Olive Pup and east of Stewart Pup. These claims, known as the STEWART and CATTO Group lie between lines 37+000E and 37+750E and are centered at approximately 11+000N. One year later, in 1908, F. Carscallen staked the CARSCALLEN Claim north of Dublin Gulch, above Carscallen Pup, near

38+650E. This claim is referred to as the old SHAMROCK Group on the General Geology and Location Map, enclosed with this report. Also in the same year the OLIVE Group, situated east of Olive Pup on 37+900E at 11+000N, the BLUE LEAD Group which lies west of Stewart Pup and slightly east of 36+550E and 10+800N, and the EAGLE Group, west of Eagle Pup at 35+800E and 10+900N, were staked. R. Fisher worked the latter three groups.

The early exploration work conducted on the Dublin Gulch claim groups was first described by T.A. McLean in 1914. In his report McLean described the general geology of the area as well as the detailed geology of the individual properties. In addition to mapping McLean sampled many of the veins, performed petrographic and geochemical studies and discussed the ore paragenesis of the deposits. The area was again visited in 1915 by D.D. Cairnes (1915) of the Geological Surey of Canada who examined the workings and sampled a few of the veins. W.E. Cockfield described the Dublin Gulch system in 1918 and another survey member reported on the system in 1927.

The next period of activity in the area was brief and is presumed to have occurred about 1970 - 1971 by Canex-Placer. A number of bulldozer trenches were dug in the vicinity of the old showings within the claim groups listed above. Most of these trenches are in excellent condition.

## Claim Status

The Dublin Gulch gold-quartz vein-fissure system is exposed over a strike length of more than 3 kilometers. The system is covered by 15 full claims and 2 fractional claims belonging to 3 claim groups. Included in this area is one crown grant claim of which 80% lies within the RD 16 claim. When assessment work is applied for the 1979 program all claims will be in good standing until October 1st. 1986. The following is a list of claims which cover the gold-quartz vein-fissure system.

| NAME | | NUMBER | |
|---|---|---|---|
| SMOKY | 62 | YA 30080 | |
| SMOKY | 63 | YA 30081 | |
| SMOKY | 64 | YA 30082 | |
| SMOKY | 65 | YA 30083 | |
| SMOKY | 74 | YA 30084 | |
| SMOKY | 75 | YA 30085 | |
| SMOKY | 76 | YA 30086 | |
| SMOKY | 77 | YA 30087 | |
| BOB | 1 | YA 17729 | Fraction |
| BOB | 2 | YA 17730 | |
| BOB | 3 | YA 17731 | Fraction |
| RD | 5 | YA 1397 | |
| RD | 6 | YA 1398 | |
| RD | 7 | YA 1399 | |
| RD | 14 | YA 1406 | |
| RD | 15 | YA 1407 | |
| RD | 16 | YA 1408 | |
| OLIVE LOT | 11 | GRANT 1054 | |

## GEOLOGY

### General Geology

The Dublin Gulch area is underlain by a series of interbedded phyllite, schist, quartzite and marble which is believed to be part of the Upper Schist Formation of the Keno Hill area. On the south side of Dublin Gulch the metasediments consist mainly of quartzite and schist but include various phyllite and skarn units. Here the stratigraphic section forms a generally north-northeast striking, northwest dipping homocline. South of Dublin Gulch the section has been intruded by an elongate granodiorite intrusion known as the Dublin Gulch Stock. The stock occurs on the south ridge and trends generally northeast. To the southwest a width of granodiorite as narrow as 100 meters is exposed beneath the overlying metasediments. To the northeast the width of stock exposed increases dramatically and exposure extends to the southeast beyond the present area of interest. Several subsidiary intrusive phases are present which include northeast trending quartz-feldspar and feldspar porphyry dykes. All dykes observed without exception occur in the metasediments.

The entire geological package is incised by several minor but usually broad creek gulches. Ourcrop in the gulches is generally sparse but is locally abundant. Granodiorite crops out mainly at the head of creek gulches and on ridge tops between the gulches (in the northeast). Metasediments are exposed on ridges between the gulches and in surface and underground excavations.

Drift cover in the area varies in depth and in its compositional nature. High on the ridge south of Dublin Gulch overburden consists of metasediment felsenmeer and scree. Below the south ridge large granodiorite boulders to 2 meters in diameter form active talus slopes in the heads of creek gulches. On the ridges between the gulches residual soils as well as a thin veneer of glacial gravel and sand are present. On the lower slopes toward Dublin Creek and in the pups below the south ridge, gravel and sand deposits exist to depths in excess of 10 meters. These gravels contain milky quartz and rock fragments both foreign and locally derived. It is this material from which gold and scheelite is obtained by the placer operation in Dublin Gulch.

## Detailed Geology

Much of the area within the gold-quartz vein-fissure system has been examined on a scale of 1:5000. Selected areas of interest have been mapped at a scale of 1:1000 and where necessary on more detailed scales. Detailed mapping was limited to areas in which old workings suggested the presence of mineral showings. It is convenient to discuss the detailed geology of the showings separately and to refer to these areas using their old claim names. The groups are described beginning in the northeast and finishing in the southwest.

### OLD SHAMROCK GROUP

The old SHAMROCK Group, also called the CARSCALLEN Claim, lies north of Dublin Gulch and south of Carscallen Pup. The claim is underlain by coarse grained biotite quartz monzonite which hosts quartz-arsenopyrite-scorodite veins and shear zone replacements. A number of surface and underground

workings are present on the property some of which expose mineralization. Mineralization also occurs in outcrop and on mine dumps adjacent to old underground workings.

The most interesting minerlization is found in a dump 15 meters east of L38+650E and 11+050N. The material comes from an adit underlying a shallow ravine which trends 040° from the portal. The timbered portal is now collapsed and because the ravine is a watercourse for snow melt, the tunnel has caved and filled with sediment. The dump is large measuring 15x5x1 meters which indicates 30 to 35 meters of drift. The dump material consists of sheared, grey, quartz boxwork, green scorodite, grey, massive arsenopyrite and coarse grained marcasite. Limonite is abundant both in the vein and in the sheared, altered granitic host rock. From the dump material the vein appears to be in excess of 10 centimeters wide and contains massive arsenopyrite. Hand specimen SB-78 shows mineral zonation which suggests early quartz and late sulphides. A grab sample from the dump, 96743A, assayed 0.926 oz/ton gold and 2.58 oz/ton silver.

On the east side of the ravine 25 meters from the portal coarse grained quartz monzonite is cut by several parallel quartz and quartz-actinolite veinlets, and a younger, 2 centimeter wide, quartz-scorodite-limonite-arsenopyrite vein. The younger vein has a strike and dip of 125° and 60° south and looks very similar to that material found in the dump. Sample SB-80 shows crusts of limonite adjacent to selvages of arsenopyrite with a core of limonitic quartz boxwork. Similar material from this vein assayed 1.612 oz/ton gold and 0.24 oz/ton silver (96744A).

Approximately 75 meters on trend and up hill from the portal a trench is cut in strongly altered and sheared quartz monzonite. Exposed in the trench is 2½ meters of green quartz-limonite mineralized shear zone which strikes between 065° and 070°. Arsenopyrite and minor marcasite occur with quartz and scorodite in the zone. Sample SB-81 shows fine grained arsenopyrite smeared with quartz, scorodite and jarosite in an altered intrusive rock.

Sample 96745A is a chip sample over 2 meters which assayed 0.210 oz/ton gold and 0.43 oz/ton silver. A similar but more strongly weathered showing occurs 50 meters northeast along trend adjacent to the west side of the trench.

At L38+650E and 11+100N a second adit and dump occurs. The portal is timbered and collapsed and the adit is caved. The volume of the dump suggests that the tunnel is less than 20 meters long. Material in the dump suggests that the drift followed a vein of similar mineralogy and texture to the above mentioned vein but there appears to be less arsenopyrite present. Samples from the dump indicate that the vein exceeded 15 centimeters in width and consists of banded quartz, scorodite and limonite (SB-83). The same material was assayed as sample 96746A which contained 0.768 oz/ton gold and 1.24 oz/ton silver.

Two pits on L38+650E contain mineralized float. A pit at 11+200N contains abundant float similar to the dump material described above. Sample 96747A assayed 0.434 oz/ton gold and 2.25 oz/ton silver. The second pit located at 11+300N contains only minor float and it is debatable if the material is locally derived.

OLD OLIVE GROUP

The Old Olive Group lies southwest of the old SHAMROCK Group and adjacent to the east of the old STEWART and CATTO Group. The showing occurs on the east side of Olive Pup, at an elevation of 1200 meters, near the top of the slope from the creek. T.A. MacLean (1914) described extensive trenching and underground developments in the area which have deteriorated beyond recognition. A few recent bulldozer trenches are present but the only mineralization observed occurred in a dump located at L37+900E and 10+975N. Abundant quartz-arsenopyrite-scorodite-limonite float occurs along with strongly altered limonitic, sericitic granodiorite. Sample SB-84 consists of massive quartz with disseminated arsenopyrite and marcasite. Sample 96748A from this same material assayed 1.650 oz/ton gold and 2.45 oz/ton silver.

## OLD STEWART AND CATTO GROUP

The old STEWART and CATTO Group lies on the south side of Dublin Gulch on the ridge between Stewart Pup and Olive Pup. On the grid this area lies between L37+150E and L37+600E and is centred at approximately 11+000N. From the centre of activity the ridge drops off from a minimum slope of 20° to the west to a maximum slope of 30° to the east. Elevations on the property range from 1110 meters at the Beaver portal to 1225 meters south of Trench No. 2. These figures indicate a maximum relief of 110 meters for the property.

Of all the gold showings on the Dublin Gulch system the old STEWART and CATTO Group has received the most attention. The earliest work included hand trenching and underground drifting. Only one old hand trench remains intact and is located 30 meters southeast of ADIT A (Aurum). At least three underground developments are present in the area, two of which are accessible for mapping and sampling purposes. The old Green Vein Tunnel is located 5 meters west of L37-600E at 10+875N and is not accessible. The timbered portal is collapsed and the adit has been cut by a bulldozer trench. The dump is relatively large and contains abundant massive minerlization. It may be worthwhile to open this adit and sample it in detail. The Aurum adit, formerly the Victoria or Moose Vein Tunnel, is located on a north facing slope about 15 meters north of L37+450E at 10+950N. The portal site was initially caved but was cleared and the mine examined. The main crosscut was found to trend at 125° for 48 meters. Two drifts of 74 meters and 9 meters trend 090° and 070° respectively. Although much of the mine has ½ meter of ice on the floor it has been mapped and sampled in detail. The third adit studied is the Beaver Adit (Adit B). This development, formerly known as the Cabin Vein Tunnel, is situated on the grid at 80 meters east of L37+150E at 11+240N. The portal is located at an elevation of 1110 meters on the west facing slope to Stewart Pup. From the portal an adit extends south for 17 meters where it branches into two irregular crosscuts. The most eastern crosscut is 57 meters in length. At the 18 meter point a drift turns to the northeast for 12 meters along the Cabin

Vein. The crosscut to the west is 19 meters long and terminates at a drift which turns to the east for 4 meters. This drift is also on the Cabin Vein. No ice was encountered in this mine.

More recent work on the system includes the 1970-71 trenching program of Canex-Placer. In the old STEWART and CATTO area more than 800 meters of trench is present. The trenches have been mapped in detail and where veins were observed the trenches were extensively sampled. The location of the trenches and the trench geology is plotted on Inset Map A and the results of the sample analysis for the trenches is plotted on Inset Map a.

The geology underlying the STEWART and CATTO Group consists of a stratigraphic sequence of quartzites, schists and phyllites which has been intruded by the Dublin Gulch Stock. The section forms a gently dipping homocline which strikes between due north and 025° and dips 40° to the northwest. Faulting and shearing is recognized both in the metasediments and in the pluton and in most instances is pre-ore. Close to the granodiorite contact minor amounts of hornfels, andalusite-bearing phyllites and both massive and laminated skarn units are present. A few narrow feldspar-porphyry dykes are observed to cut the section and generally trend 060° to 070°. Two types of quartz veins are present in the area. The oldest set of veins consists of a series of parallel, milky white quartz and quartz-scheelite veins up to 30 cm in width. The veins generally strike northeast but sometimes occur in irregular stockworks. In the vicinity of the contact and primarily in the metasediments a number of quartz-arsenopyrite-scorodite veins occur. The veins range in width from a few centimeters to over a meter and strike 060° to 090° with steep dips to the south. At least nine veins have been observed in a zone over 300 meters wide.

The mineralogy of the individual veins is very similar to that described in the previous sections. The veins are generally banded and exhibit shear textures. Quartz usually forms a limonitic boxwork which contains bands of massive fine and coarse

grained quartz. Some quartz bands contain various concentrations of fine grained scorodite which gives quartz bands of various shades of green. Arsenopyrite occurs as fine grained grey streaks throughout the quartz boxwork and is often covered with green scorodite crusts. Material from the Green Vein Tunnel (SB-54) consists of massive arsenopyrite and marcasite in a boxwork of quartz. Fine grained arsenopyrite contains coarse grains of marcasite and thin streaks of a soft, blue-black sulphide which is possibly stibnite or a complex Ag-Sb sulphosalt. In weathered specimens only arsenopyrite and limonitic quartz boxwork are present. Sample 96263A of this massive material assayed 0.178 oz/ton gold, 1.02 oz/ton silver and 1.2% antimony.

West of the Green Vein Tunnel in Trench No. 2 a vein trends for 30 meters at 090°. The bedrock in the trench consists of limonitic, sericitic quartzite and phyllite. Slightly east of the trench granodiorite crops out. It appears that the vein passes laterally from the metasediments to granodiorite. The vein ranges in width up to about 40 centimeters and appears to splay into two smaller veins at 25 meters from the east end of the trench. Composite chip samples 1 meter long were collected across the trend of the vein every 3 meters along the trench. Fourteen samples in all were collected and analyzed geochemically for gold, silver and tin and assayed for $WO_3$. Six samples which contained in excess of 5000 ppb gold were assayed for gold. The assay values ranged up to 0.746 oz/ton. Silver values for this vein were low and ranged from 0.1 ppm to 5.4 ppm. Only traces of tin and tungsten were present. All of the above sample data is plotted on the Trench Geochemistry Map 16 Inset Map a. The remaining eight samples not assayed for gold have been converted into oz/ton values using a conversion factor of 34.3 ppm = 1 troy oz/ton.

Sixty meters north of Trench No. 2 is located Trench No. 3. This trench is approximately 80 meters long and trends 100°. Three mineralized quartz veins were observed to cut the trench at oblique angles. All strike 070° and dip 70° to the

southeast. Bedrock consists mainly of massive quartzite with minor phyllite and a small granodiorite dyke. Where vein material occurs in the trench composite chip samples were collected. Fifteen 3 meter composite chip samples were collected and assayed for gold. Gold values range from a trace to 0.042 oz/ton over 3 meters. The sample collected near the eastern most vein assayed 0.022 oz/ton gold. However, samples collected near the other veins only assayed a trace of gold. The highest gold value obtained was in a sample collected from an area where mineralization was not recognized. It is apparent that further work is required in this area.

In Trench No. 5, 140 meters west of Trench No. 3, a quartz vein crops out. The vein is composed of banded quartz and green scorodite with selvages of arsenopyrite. Adjacent and parallel to the vein is a smaller limonitic quartz veinlet of similar mineralogy. Together this zone is 23 centimeters wide and strikes 065° and dips steeply to the south. The larger vein was grab sampled and the entire zone was encompassed in a 1 meter composite chip sample. Sample 96741A is a grab sample of vein material which assayed 0.602 oz/ton gold. The same sample was analyzed for silver, tin and tungsten but only trace values were obtained. Sample 96742A is a one meter composite across the vein and includes vein material. The sample assayed 0.198 oz/ton gold and contained only traces of silver,tin and tungsten. Other mineralized float was found in Trench No. 5 but mineralization was not located in out-crop.

Trench No. 4 extends southwest from L37+300E at 11+160N for 50 meters at 240°. The trench is underlain by schist and phyllite and contains a zone of white quartz stockwork veinlets. At the midpoint of the trench a minerlized quartz vein crops out. It is believed that this vein may be a surface exposure of the Cabin Vein. The vein trends approximately 060° for 7 meters along the trench and ranges up to 12 centimeters wide. The mineralogy is similar to veins previously described with green-grey, banded quartz and streaks of grey, fine grained arsenopyrite. A limonitic, sericitic quartz boxwork

is present and siliceous, sericitic alteration envelopes in the adjacent metasediments. A grab sample of the vein material was assayed for gold, silver and $WO_3$ and analyzed geochemically for tin. Sample 96740A contained 0.540 oz/ton gold, 0.56 oz/ton silver and only traces of $WO_3$ and tin.

North of Trench No. 4 and subparallel to L37+300E lies Trench No. 1. This trench is approximately 110 meters long and is underlain by biotite, muscovite and phyllitic quartzite. Cutting the trench at near right angles is a series of subparallel quartz veinlets. The veins vary in width and abundance but may comprise up to 50% of a meter of outcrop. Where quartz veins are abundant the trench has been chip sampled. All chip samples were of 3 meters length. All were geochemically analyzed for gold, silver and tin and assayed for $WO_3$. Gold values range from a trace to 145 ppb while silver values indicate only a trace. Tin values range to 6 ppm and $WO_3$ to 0.10%. Overall, values indicate the presence of only traces of the sought metals.

A major amount of information for the gold-quartz vein-fissure system was obtained from the underground workings that were mapped and sampled in detail. The first development examined was, in the past, known as the Victoria or Moose Vein Tunnel. The tunnel which has subsequently been named ADIT A (Aurum), was first mapped by T.A. McLean in 1914 before it was completed. To date the tunnel is in excellent physical condition. Except for the right drift on the Victoria or Moose Vein and the crosscut between the portal and the slash, the floor of the tunnel is covered by ½ meter of ice. In addition the walls and backs of the drifts and crosscuts are covered by ice up to 30 centimeters thick. Much of the ice was removed for mapping and sampling purposes although thick, dense ice prevented mapping and sampling over most of the left drift on the Victoria or Moose Vein.

The Aurum portal is located 15 meters north of L37+450E at 10+950N. The portal is collared in andalusite-bearing, phyllitic quartzite and the

crosscut trends southeast at 125° through similar thick bedded, thinly laminated, schistose quartzite. The total length of this crosscut is 48 meters over which 9 veins were intersected. The veins range in width from 2 to 20 centimeters, strike between 070° and 100° and dip between 55° and 85° south.

The largest and most significant of the veins encountered is the Victoria or Moose Vein. This vein consists of typical banded, green quartz-scorodite-arsenopyrite material which ranges between 10 and 65 centimeters wide. The vein was routinely sampled using a technique suggested by R.J. Barclay of Bema Industries Ltd. The sampling procedure involved chip sampling the vein on the back every two meters for the entire length of exposure. At each station a sample of vein material was collected for gold assay. A second sample collected at each station consisted of a 1 meter composite chip sample which included the vein material. This sample was also assayed for gold. Although the assay values varied widely along the vein, as expected vein samples assayed consistently higher in gold content then the composite samples. The results are plotted on Inset Map B, Aurum Adit, Underground Geology and Geochemistry. (Map 17)

A sampling program of the design mentioned permitted the calculation of two grade values for the exposed length of vein. Calculations were made by D. Coffin of Canada Tungsten Mining Corporation Limited using a method in which the gold assay values are extrapolated half the distance between samples and 1 meter beyond the last sample on each end of the exposed vein. A grade value of 0.167 oz/ton over 25 meters was obtained when the values from the one meter composite chip samples were extrapolated and averaged. A grade value of 0.335 oz/ton over 22 meters was obtained when the values from the vein samples was averaged over a one meter width, extrapolated and averaged. This calculation includes the right drift and the first few meters of the left drift. Samples collected at the extreme end of the left drift gave values of 0.124 oz/ton for vein material and 0.140 oz/ton for a 1 meter composite across the face.

At 33 meters from the portal a second drift is cut to the right. This cut is abruptly offset 1.5 meters to the left 3 meters from the crosscut and is offset to the right again at 7½ meters from the crosscut. As a result of this geometry this drift has been referred to as the Dogleg. Two converging veins occur in the Dogleg. In the crosscut the veins are 1.25 meters apart on the back but converge to 25 centimeters of separation at the face of the drift. The veins strike 075° and 070° and dip southerly 73° and 65° respectively in order from the portal. The vein mineralogy consists of the typical limonitic quartz-scorodite-arsenopyrite material with limonitic, sericitic alteration envelopes. The drift was routinely sampled in the same manner as the Victoria or Moose Vein and a rough grade calculation was made using the gold values. Using the 1 meter composite chip sample values the calculation gave a grade of 0.291 oz/ton over 11.5 meters.

The second adit to be examined was ADIT B (Map 18 Beaver) formerly the Cabin Vein Tunnel. The Beaver portal is located on a northwest dipping slope 80 meters east of L37+150E at 11+240N. From the portal the adit extends south for 16 meters where the tunnel splits into two passages. To the right (west) the tunnel continues curving left and crosscuts at 135°. Ten meters past the turn the crosscut intersects the Cabin Vein. At this point the tunnel turns left to drift for 4 meters northeastward along the vein. From the end of the drift to the portal this tunnel is in generally poor condition. Much of the back is very broken and caved especially in the drift where the vein follows a shear zone. The vein in this drift is typical of those in the area and is composed of banded quartz and scorodite with minor arsenopyrite. The vein occurs in a shear zone which cuts altered, limonitic, sericitic quartzite and exceeds 1.5 meters in width. Three chip samples were collected across the vein, assay values range from 0.018 oz/ton gold to 0.766 oz/ton gold. Tungsten assays reveal the presence of only a trace of $WO_3$.

The crosscut which splits to the left trends irregularly southeast for 57 meters before terminating in badly broken ground. Numerous bull quartz veins often greater than 5 centimeters wide cut the tunnel in two prominent directions. The most common direction is 060° to 070° with steep dips to the south. The second less common direction ranges between due north and 005°. Together these veins are quite closely spaced and average more than one vein per meter. The veins are very similar to the scheelite bearing quartz veins observed in Trench No. 1 so the entire length of the adit was chip sampled and assayed for gold and tungsten. Fifty-four one meter samples were collected over a length of 57 meters. Rarely more than a trace of gold or tungsten was contained in the samples. Values ranged from a trace to 0.174 oz/ton gold and to 0.22% $WO_3$. Only one sample (96938) exceeded one tenth of an ounce of gold per ton of material and only three samples exceeded one tenth of a percent of $WO_3$.

At the 18 meter point from the split the left crosscut intersects the Cabin Vein. The tunnel turns to the left and drifts along the vein for 13 meters. The vein ranges in width from 70 centimeters to 1.4 meters, strikes 065° and dips steeply to the south. Chip samples were taken across the width of the vein at both faces and at three irregular intervals over the 13 meter length. All samples were assayed for gold and $WO_3$. Gold values were irregular and ranged from 0.005 oz/ton to 0.514 oz/ton. Tungsten values were consistently low ranging from 0.02% to 0.03% $WO_3$. A calculation similar to that made for the Aurum adit was performed by D. Coffin. A grade of 0.154 oz/ton gold for a width 1.3 meters over a length of 23 meters was computed for the Cabin Vein.

In summary the STEWART and CATTO Group has received the most attention of the presently known showings. An underground exploration program on three separate veins has been conducted as well as bulldozer trenching on several other veins. Many of the exposed veins have been sampled extensively and rudimentary grade calculations have been made. Most of the veins occur in metasediments and few

occur in the granodiorite. The veins occur roughly parallel to the long axis of the stock and may be related to fault structures developed during the emplacement of the pluton. The contact between the metasediments and the stock appears to dip at about 40° to the northwest. This may reduce the potential for mineralized structures at depth.

## OLD BLUE LEAD GROUP

The old BLUE LEAD Group is located on the Crest of a long narrow ridge between Stewart Pup to the east and Eagle Pup to the west. The main showing on the property consists of mineralized float found in a dump beside a shaft. The shaft is located at the 1210 meter elevation on the west side of the ridge 5 meters below the crest. On the grid the shaft is located 25 meters east of L36+550E at 10+800N. The timbered shaft measures 2 meters by 1 meter and extends to a depth of 3½ meters. Below 3½ meters the shaft is filled with ice and extends to an unknown depth. A ladder is firmly frozen in the ice which suggests that the shaft probably extends for at least another meter.

The material in the dump suggests that the shaft was driven on a banded quartz-scorodite-arsenopyrite vein of at least 50 centimeters wide which occurs within sheared, altered granodiorite. The vein consists of limonitic quartz and green scorodite with selvages of arsenopyrite. Arsenopyrite also occurs as irregular masses (SB-47) and as fine and coarse grained disseminations in quartz gangue. Marcasite occurs as a minor constituent with arsenopyrite and also as late marcasite and quartz-marcasite veinlets which cut arsenopyrite. Sample 96261A of SB-47 is a grab sample of massive arsenopyrite and assays 0.472 oz/ton gold and 2.17 oz/ton silver. The granodiorite near the vein consists of quartz, muscovite, sericite and clay and is cut by minor quartz veinlets. The rock is strongly limonitic and contains a minor amount of disseminated sulphides. Away from the veins the rock is a coarse grained megaporphyry with white

feldspar phenocrysts up to 5 millimeters in length in a matrix of feldspars and mafics of 2 to 3 millimeters in length.

Seventy meters north of the shaft is the granodiorite metasediment contact. At the contact the metasediments are comprised of biotite quartzite and schist with concordant quartz stringers. At an outcrop on the ridge crest the sediments strike 020° and dip 35° to the west. To the north in a long bulldozer trench, argillite and phyllite is exposed. Several basic feldspar porphyry dykes cut the stratigraphic section. No mineralized quartz veins were observed in the metasediments.

## OLD EAGLE GROUP

On the western end of the currently defined Dublin Gulch Gold-Quartz Vein-Fissure System is located the old EAGLE Group. The group is situated on the flat topped ridge above and to the west of Eagle Pup. Several underground workings are present in the area as well as open cuts, hand trenches and bulldozer trenches. Most of the workings expose quartz and quartz-scorodite-arsenopyrite showings of which a number of these have been sampled.

The area of interest is underlain by a section of biotite schist, biotite quartzite and massive quartzite. The section varies in strike from 040° in the north to 170° near the main workings, and to 135° in the extreme south where the width of exposure of granodiorite is narrowest. The metasediment package dips to the west at angles between 25° and 40°.

To the south the metasediments are underlain by the Dublin Gulch Stock which appears to dip steeply beneath the section. In this area the exposed contact turns sharply from a northeast trend to trend north-south. The granodiorite occurs as a coarse grained rock with biotite, feldspar, quartz and a few chloritized mafics. Numerous narrow, subparallel quartz veinlets cut the granitic rocks and

several granodiorite and quartz-feldspar porphyry or aplite dykes cut the metasediments.

Quartz-scorodite-arsenopyrite veins crop out in a zone of over 400 meters wide in a north-south direction away from the stock. At least four showings have been examined and others could be realized. Sample SB-39 is a limonitic quartz vein 2 to 3 centimeters wide with minor scorodite and fine arsenopyrite disseminations. The vein is located 75 meters east of L35+950E at 11+175N, strikes 055° and dips 75° to the southeast. Sample 96254 of the same material assayed 0.302 oz/ton gold and 1.76 oz/ton silver.

On L35+950E at 11+100N a 2x1½ meter open cut trends 080° for 3 meters into sheared, limonitic quartzite. The quartzite is cut by a number of narrow quartz veinlets that occur in the sheared zone. Sample 96255A, a chip sample of the walls of the open cut, contained only a trace of gold and 0.14 oz/ton silver.

All other showings within the area are located on Inset Map D, Trench Geology Near L35+800E. (Map 19) Northeast of the longest bulldozer trench and 9 meters east of L35+800E at 10+950N lies an old 15 meter hand trench. The trench is about a meter deep now and is largely overgrown. The material beside the trench includes sheared limonitic quartzite and grey clay material from the shear zone. This dump material was sampled in three 5 meter intervals and analyzed geochemically for gold and silver. Sample a96256A is from the north end of the trench and contained 660 ppb gold and 1.0 ppm silver. The middle sample, b96257A contained 20 ppb gold and only a trace of silver. Sample c96258A from the south end of the trench contained only traces of both gold and silver. More detailed work is required to understand the gold value obtained from sample a96256A.

Another vein occurs in the long trench 55 meters from the northern end. This vein, represented by sample SB-34, consists of limonitic, milky quartz, is 50 centimeters wide and trends northeast across the trench. Sample 96253A, also of this material,

was found to contain no gold and only 0.28 oz/ton silver.

Along strike 25 meters northeast another quartz vein showing occurs. This showing consists of a quartz-scorodite-arsenopyrite vein which crops out in a bluff of laminated and massive quartzite. The vein is a fracture filling which ranges to 10 centimeters wide. The orientation of the vein is northeast southwest with a strike of 060° and a dip of 80° to the southeast. Sample SB-42 of the vein material consists of massive milky quartz with selvages of massive, fine grained arsenopyrite. Crusts of green scorodite and limonite occur in the vein and in alteration envelopes respectively. Material similar to SB-42 was assayed as 96260A contained 0.196 oz/ton gold and 0.02 oz/ton silver.

The remaining significant showings are located 40 meters and 45 meters east of L35+800E and 10+800N. The mineralization is found in the dumps of two shafts located 10 meters apart, in a west-northwest direction, east of the long trench. The shafts are situated on an east facing slope about 10 meters below the ridge top at the 1145 meter elevation. The eastern most shaft is flooded by about 30 centimeters of water and terminates in either rock or ice. The material sampled (SB-31) was float from the dump and consisted of limonitic quartz boxwork with scorodite and minor arsenopyrite. In one specimen a speck of free gold was observed although this is not reflected by the assay values for sample 96251A. Based on dump material the vein is estimated to exceed 30 centimeters in width.

The western most shaft is located 10 meters at 295° from the shaft discussed above. The shaft measures 2 meters by 1 meter square and is timbered to a depth of 3 meters. At 3 meters the shaft bottoms in loose material probably from the dump. SB-40 was collected from this dump and contains banded, massive and boxwork quartz with limonite, scorodite and arsenopyrite. The massive quartz is coloured various shades of green and the boxwork

is stained with both limonite and scorodite. The centre of the vein consists of quartz boxwork with thick streaks of arsenopyrite. Scorodite is strongly developed in the core of the vein and markedly predominates limonite development. Sample 96259A of this material assayed 1.010 oz/ton gold and 1.04 oz/ton silver. This vein is of particular important as float in the dump indicates that the vein exceeds 30 centimeters in width.

An adit was observed 60 meters east at 052° of the southern most shaft. The adit trends 060° for at least 13 meters and is almost entirely caved. Material in the dump indicates the adit was driven into coarse grained granodiorite. No mineralization was observed.

## CONCLUSIONS

The Dublin Gulch Gold-Quartz Vein-Fissure System consists of a series of subparallel, banded quartz-arsenopyrite-scorodite veins which occur as fracture fillings and shear zone replacements in a belt up to 400 meters wide. The veins are found in the vicinity of the contact between the Dublin Gulch Stock and the overlying metasediments and may occur in structures developed during the emplacement of the granodiorite stock. The veins are exposed in outcrop and in various surface and underground workings over a strike length of 3 kilometers. The system is open along strike in both directions and is open down dip. The potential for mineralized structures at depth may be limited due to the presence of granodiorite at shallow depths beneath the metasediment section. Vein structures which pass from the brittle metasediment package to the granodiorite tend to form weakly mineralized zones rather than high grade loads. The economic potential of the system may depend on outlining a zone of closely spaced mineralized structures and developing this zone as a low grade gold situation. At this time further work is required to properly realize the economic potential of the area. Testing by bulldozer trenching and by diamond drilling are the only methods which can be used to evaluate the continuity of these structures both along strike and down dip.

## RECOMMENDATIONS

### Trenching

To delineate the zone of mineralization a series of bulldozer trenches is recommended. The trenching program outlined is extensive and its implementation will depend on the priorities established for the vein-fissure system. The recommended procedure is to cut a series of bulldozer trenches across the width of the zone along the entire length of the system. The purpose of these trenches is to locate mineralized structures on which detailed evaluation methods can be employed.

Twenty-one trenches are proposed and are plotted on the General Geology and Location Map. (Map 14 Seven of these trenches totalling 1025 meters currently exist but require some excavation to expose bedrock. Fourteen new trenches totalling 3050 meters are recommended to crosscut the system. The position of these trenches are only approximate as alternate positions may be necessary due to topography.

In addition to mapping, the crosscut trenching program should be supplemented by a rock geochemistry program. The method proposed is to chip sample the crosscut trenches along their entire lengths on two meter intervals. The material collected should be geochemically analyzed for gold, arsenic and silver. Samples which contain more than 5000 ppb gold should be assayed for gold. Follow up chip samples on anomalous values should consist of 1 meter samples for gold assay across the anomalous zone. Where a vein is discovered the two sample technique program should be conducted across the vein.

When veins of interest are recognized in the crosscut trenches detailed follow up work is recommended. The program should involve trenching on the vein structure along strike, mapping and sampling. The suggested sampling program involves collecting chip samples across the width of the vein

every two meters along the length of the trench. Where the vein is significantly less than a meter wide it is favourable to collect two samples at each site, a chip sample of vein material and a one meter composite chip sample across the vein including vein material. The materials collected should be assayed for gold and geochemically analyzed for silver and antimony.

Diamond Drilling (Map 14)

To test the down dip extension of vein structures several areas of interest have been isolated for diamond drilling. Seven diamond drill holes totalling approximately 745 meters (2271 feet) are proposed. Two of the holes are recommended to test known vein occurrences and five of the holes are intended to test suspected vein structures. More holes will be required if encouraging results are obtained from these holes. Diamond drill holes will be necessary to test the vein structures along strike and down dip from the currently proposed tests.

Diamond drilling in the metasediments and in the granodiorite should not present any technical problems to an experienced diamond drill crew. However when drilling weathered veins and mineralized shear zones core recovery problems are anticipated. NQ size drill equipment and careful mud control should be used on the job.

Proposed Diamond Drill Holes

DDH-80-G1

Location: One the old STEWART and CATTO Group approximately 10 meters west of L37+450E at 10+850N or 15 meters south of the centre point of Trench No. 2.

Azimuth: 345° Dip: -60°

Proposed Depth: 150 meters

Purpose: This hole is intended to test the Victoria or Moose Vein to a depth of at least 85 meters below surface. Several intersections of smaller veins are anticipated but the Victoria or Moose Vein intersection is expected to occur at a drill hole depth of 120 meters. If the vein dips more steeply at depth than measured in the Aurum adit the intersection may occur at depths up to 180 meters.

DDH-80-G2

Location: On the old STEWART and CATTO Group approximately 70 meters east of L37+150E at 11+090N or 140 meters southeast at 150° from the Beaver portal.

Azimuth: 330° Dip: -60°

Proposed Depth: 170 meters

Purpose: The hole will test the Cabin Vein to a depth of more than 100 meters below surface. The target depth is approximately 140 meters but the intersection may occur at a depth of as much as 210 meters.

DDH-80-G3

Location: On the old STEWART and CATTO Group approximately 25 meters west of L37+600E at 10+815N or 5 meters west of the claim posts which include the BOB No. 2 and BOB No. 3 initial posts and the BOB No. 1 final post. This location is also 50 meters southeast at 165° from the bulldozer trench which cuts the Green Vein Tunnel.

Azimuth: 345° Dip: -60°

Proposed Depth: 90 meters

Purpose: The drill site lies 50 meters south of the Green Vein Tunnel. Though the vein has not been observed, mineralized float in the dump indicates the presence of a major vein. The vein is estimated to trend between 070° and 090° and therefore a drill hole azimuth of 345° is recommended. The target depth of the hole is 75 meters but a steeper dip for the vein could result in a target depth of up to 110 meters. The proposed hole will test the down dip extension of the Green Vein to a depth of more than 55 meters.

DDH-80-G4

Location: On the old OLIVE Group approximately 40 meters west of L37+900E at 10+900N or approximately 40 meters south of the centre of the trench which crosses L37+900E at 10+925N.

Azimuth: 345° Dip: -60°

Proposed Depth: 75 meters (approximate)

Purpose: This hole will be collared near the old OLIVE Group workings east of Olive Pup. The hole is intended to locate the vein from which mineralized float found in the areas was derived. The float was found in a dump north of the northeast-southwest trending trench described above. The drill hole target depth is approximately 60 meters but may be as deep as 100 meters. The vein will be tested to a depth of more than 50 meters below surface.

DDH-80-G5

Location: On the old BLUE LEAD Group approximately 15 meters east of L36+550E at 10+750N or 50 meters southeast at a bearing of 150° from the old BLUE LEAD shaft located at 25 meters east of L36+550E at 10+800N.

Azimuth: 330° Dip: -60°

Proposed Depth: 75 meters (approximate)

Purpose: The hole is proposed to locate and test the vein on which the old BLUE LEAD shaft is driven. From float observed in the dump the vein is estimated to exceed 50 centimeters in width. An intersection is anticipated at a drill depth of approximately 60 meters but depths up to 100 meters could be realized. The hole will test the structures to a depth in excess of 50 meters.

DDH-80-G6

Location: On the old EAGLE Group approximately 35 meters east of L35+800E at 10+775N or on the ridge top 50 meters southeast at 150° from the most southern of the two old EAGLE Group shafts.

Azimuth: 330° Dip: -60°

Proposed Depth: 110 meters

Purpose: The objective of this hole is to locate the two, possibly parallel, veins on which the old EAGLE Group shafts are driven. Major intersections are expected to occur at depths of approximately 75 meters and 95 meters. Maximum depths of 115 meters and 145 meters are possible for these intersections. The hole will test the veins to depths

of at least 55 meters and 75 meters respectively.

DDH-80-G7

Location: On the old SHAMROCK Group approximately 30 meters east of L38+650E at 11+050N or 50 meters southeast at 150° from the dump located at 11+050N on L38+650E. This drill site is located about 15 meters south of Dublin Creek.

Azimuth: 320° Dip: -60°

Proposed Depth: 75 meters (approximate)

Purpose: To locate and test the vein from which the material in the dump located at L38+650E and 11+050N was derived. The vein appears to underlie a southwest trending watercourse and may strike at 050°. The major intersection should occur at approximately 60 meters depth, but depths of up to 100 meters are possible. The hole will test the vein to a depth of at least 50 meters below surface.

Underground Geology

The Green Vein Tunnel is the only underground development observed to date which warrants re-opening for mapping and sampling purposes. Based on the dump volume it is apparent that the Green Vein Tunnel is comparable in size to the Aurum and Beaver adits. The portal is located just west of L37+600E at 10+880N at the base of the west slope of Olive Gulch. From the portal the tunnel trends southwest at 250° for at least 20 meters before disappearing beneath a moderately steep scree slope. The adit is timbered but is now caved and not accessible. A bulldozer is required to clear the scree away from the slope base before access to the drift can be gained. It is anticipated that a maximum of 3 hours of bulldozer time would be required for this job. The area is readily accessible by bull-dozer via Olive Pup and is approximately 550 meters upstream from the point where Olive Pup crosses the

main access road to the plateau above the head of Dublin Gulch.

The program proposed for the underground evaluation includes geological mapping on a scale of 1:100 and a chip sampling program using the same methods used in the Aurum adit. This program includes collecting chip samples of vein material supplemented with 1 meter composite samples centred on the vein including vein material. The samples should be collected every two meters along the drift. All samples should be assayed for gold and silver and analyzed geochemically for antimony.

Detailed mapping and sampling of the iced section of the Victoria or Moose Vein drift would provide valuable data with which to make grade calculations. It is recommended that a program for deicing this section of the drift be instigated for the 1980 field season. Sampling should be conducted using the same methods used for the right drift.

References

1. Cairnes, D.D.; (1915) Geol. Surv. Canada, Sum. Rept. pp. 29 - 34.

2. Lennan, W.B.: (1979) "1978 Project Report on The Dublin Gulch Property, Yukon Territory", Canada Tungsten Mining Corporation Limited.

3. McLean, T.A. (1914) "Lode Mining in Yukon", Mines Branch, Dept. of Mines, Ottawa, pp. 127 - 159.

Part V

# 1979 Diamond Drilling Report on Dublin Gulch Claim Groups A-L Garnet Skarn Zone

by W.B. Lennan
W. Gewargis

## DIAMOND DRILLING

1979 Diamond drill plan (See Map 20 &21)
1979 Detailed Geological Log of each hole together with assay sheets are presented in (Volume II).

### Introduction

A diamond drilling programme was initated by Canex Placer during the 1971 field season which resulted in three short holes which were concentrated on the main granodiorite stock that intrudes the Yukon Group metasediments. Only trace amounts or very low grade tungsten was found.

Exploration work carried out during the 1978 field season in the area indicated the presence of four skarn zones carrying tungsten values. They are interbedded with quartzite metasediments that lie to the southeast of the main stock of granodiorite. The most interesting unit, with respect to tungsten mineralization, is the garnet skarn zone which strikes northeast and dips northwesterly and comes near the contact with granodiorite mainly to the north northeast. Three thousand feet (914.4m) of diamond drilling was required in the vicinity of the Mar 1-30 claims. This was to honour the conditions set out in the option agreement between Canada Tungsten and Queenstake Resources. In the 1979 field season the skarn zones located in Dublin Gulch were subjected to an intensive diamond drilling programme that resulted in the drilling of 21 holes for a total footage of 7951 feet (2423.5m) of BQ sized core. A summary of the holes is given in Tables 3 & 4.

The drilling was undertaken by Canadian Longyear Inc. utilizing a Super 38 diamond drill rig, with BQ wireline, BW casing, collapsible mast tower and deep hole drilling capabilities. The programme commenced July 23, 1979, with mobilization of the crew and equipment from Ross River, and was terminated on September 23, 1979 because of frozen lines.



PLATE 1 D.D.H. 79 - 1

SUMMARY OF 1979 DIAMOND DRILLING PROGRAMME TABLE 3

DUBLIN GULCH PROPERTY

| Hole No. | Claim Name | Footage Ft | Footage M | Elevation M | Latitudes N | Departures E | Dip | Az | Mineralized Zone Drilled |
|---|---|---|---|---|---|---|---|---|---|
| 79-1 | R.D.9 | 526 | 160.36 | 1400.08 | 7100528 | 463139 | 70° | 90° | Garnet skarn zone |
| 79-2 | Dave 13 | 477 | 145.43 | 1399.68 | 7100364 | 463133 | 70° | 90° | Garnet skarn zone |
| 79-3 | Mar 6 | 357 | 108.84 | 1387.08 | 7100920 | 463683 | 70° | 90° | 39+400 skarn zone |
| 79-4 | Mar 3 | 487 | 148.47 | 1383.86 | 7101129 | 463965 | 70° | 90° | 39+800 skarn zone |
| 79-5 | Mar 5 | 407 | 124.08 | 1398.27 | 7100739 | 463781 | 70° | 90° | 39+400 skarn zone |
| 79-6 | R.D.9 | 410 | 125.00 | 1391.66 | 7100672 | 463112 | 70° | 90° | Garnet skarn zone |
| 79-7 | R.D.9 | 494 | 150.61 | 1398.93 | 7100531 | 463046 | 70° | 90° | " " " |
| 79-8 | R.D.10 | 244 | 74.39 | 1373.14 | 7100908 | 463136 | 60° | 90° | " " " |
| 79-9 | R.D.10 | 124 | 37.81 | 1376.08 | 7100872 | 463140 | 60° | 90° | " " " |
| 79-10 | R.D.9 | 404 | 123.17 | 1389.95 | 7100680 | 463013 | 60° | 90° | " " " |
| 79-11 | R.D.9 | 400 | 121.95 | 1381.23 | 7100780 | 463033 | 63° | 90° | " " " |
| 79-12 | R.D.9 | 337 | 102.74 | 1383.50 | 7100780 | 463129 | 65° | 90° | " " " |
| 79-13 | R.D.9 | 347 | 105.79 | 1391.93 | 7100677 | 463169 | 70° | 90° | " " " |
| 79-14 | R.D.9 | 453 | 138.11 | 1396.36 | 7100604 | 463119 | 70° | 90° | " " " |
| 79-15 | R.D.9 | 260 | 79.25 | 1401.09 | 7100532 | 463199 | 70° | 90° | " " " |
| 79-16 | R.D.9 | 483 | 147.22 | 1401.08 | 7100447 | 463135 | 70° | 90° | " " " |
| 79-17 | Dave 13 | 447 | 136.25 | 1402.78 | 7100363 | 463213 | 70° | 90° | " " " |
| 79-18 | Dave 13 | 467 | 142.34 | 1396.92 | 7100232 | 463149 | 65° | 90° | " " " |
| 79-19 | Dave 13 | 437 | 133.20 | 1394.16 | 7100137 | 463169 | 65° | 90° | " " " |
| 79-20 | Dave 13 | 367 | 111.86 | 1394.00 | 7100076 | 463185 | 65° | 90° | " " " |
| 79-21 | R.D.9 | 23 | 7.01 | 1391.00 | 7100447 | 463050 | 70° | 90° | " " " |
| | | 7946 | 2423.88 | | | | | | |

The cost of drilling, which includes moving, supplies, hole testing, mobilization and demobilization was approximately $21 per foot. Fuel costs and crew maintenance are not included in this figure. For a summary of drilling costs see Table 4 . The lower cost is due to the high performance of the crew, quick expediting by Cantung employees and short moves. A D-7 cat was utilized for moving the rig to various sites.

Prior to drilling, detail geological mapping (1:1000), trenching and sampling were carried out on the skarn zones, in particular the "Garnet Skarn Zone". This helped delineate the lateral extent of the zone and the grade of mineralization over that total extent. The drill holes proposed in 1978 were subjected to position changes due to the results of the above work.

Twenty one sites were prepared with the use of a D-7 cat. All of the sites were located southwest of Potato Hill on the Garnet Skarn Zone. This area lies on the Ray Gulch Grid between lines 38+200E and 38+950E, between baseline 10+000N and station 9+200N. The 39+400 and 39+800 skarn zones were also tested and lie in this area. The areas drilled have elevations lying between 1373 meters and 1401 meters.

The drill sites are plotted on Map 20&21.Water was obtained by melting permafrost which ran off to feed a sump pond at the headwaters of Dublin Creek and then was pumped to the drill sites.

Sampling

Drill core was first examined under sunlight to identify the various skarn zones and then under an ultraviolet lamp to detect the presence of scheelite. Samples were taken at different intervals depending upon mineralization, lithology etc. These intervals ranged from 0.3 - 2.4m.

SUMMARY OF 1979 DIAMOND DRILLING COSTS TABLE 4

DUBLIN GULCH PROPERTY

| ery Hole No. 79- | Reaming, Cave & Cementing $ | Material left in hole. $ Bit | Material left in hole. $ Casing | Hole Test $ | Moving $ | Drilling Cost $ | Total |
|---|---|---|---|---|---|---|---|
| | 49.0 | | | 117.70 | 2939.0 | 9113.57 | 12,219.2 |
| | | | | 56.55 | 539.0 | 8221.80 | 8,817.3 |
| | | | 411.35 | 105.55 | 686.0 | 6153.21 | 7,356.1 |
| | ,690.50 | 3,018.03 | | 98.00 | 441.0 | 8394.28 | 13,641.8 |
| | 637.00 | 315.65 | 211.00 | 56.55 | 699.0 | 6998.06 | 8,917.2 |
| | ,127.00 | 830.51 | | 113.10 | 980.0 | 7067.05 | 10,117.6 |
| | ,156.00 | 1,582.14 | 152.87 | 117.70 | 343.0 | 8517.36 | 12,869.0 |
| | | | 204.85 | 56.55 | 539.0 | 4205.62 | 5,006.0 |
| | 354.00 | | | | 392.0 | 2137.59 | 2,883.9 |
| | | 267.62 | 152.87 | 113.10 | 1345.0 | 6963.57 | 8,842.1 |
| | 147.00 | 374.56 | 738.68 | 56.55 | 294.0 | 6894.58 | 8,505.3 |
| | 98.00 | | | 98.00 | 245.0 | 5636.34 | 6,077.3 |
| | | | | 98.00 | 294.0 | 5981.29 | 6,373.2 |
| | | | | 98.00 | 245.0 | 7807.86 | 8,150.8 |
| | 98.00 | | | 98.00 | 539.0 | 4481.59 | 5,216.5 |
| | | | 152.87 | 98.00 | 686.0 | 8325.29 | 9,262.1 |
| | ,127.00 | | | 49.00 | 539.0 | 7704.94 | 9,419.9 |
| | | | 204.85 | 49.00 | 490.0 | 8049.33 | 8,793.1 |
| | 441.00 | | 222.08 | 49.00 | 392.0 | 7532.46 | 8,636.5 |
| | | | | 49.00 | 514.5 | 6324.98 | 6,888.4 |
| | | | 222.08 | | 1264.0 | 396.42 | 1,882.5 |
| | ,924.50 | 6,388.51 | 2673.50 | 1577.35 | 14,405.5 | 136,907.19 | 169,876. |

Core splitting was done in the field. Analysis for tungsten and gold was carried out by Chemex Labs of North Vancouver, B.C. Tin and molybdenum were also analyzed where it was felt necessary. The results are plotted on Sections AA' - NN' as well as recorded on the assay record sheets and drill logs in Volume II. Assay procedures are noted on page 93.

Results

A total of 14 geological cross sections and 2 longitudinal sections were plotted at a scale of 1:400 using a north orientation for cross sections and an east orientation for the longitudinal sections.

Geological examination of each hole, with the exception of holes 79-3, 79-4 and 79-5, revealed the presence of two mineralized skarn zones of varying grades and thicknesses within the quartzite metasediments. The Upper Zone was found near the surface and the Lower Zone was found at depth. For grade and thickness see Table 5.

Diamond drill holes 79-3, 79-4 and 79-5 did not exhibit visible tungsten mineralization. Hole 79-3 was located to test the 39+400 skarn zone but was collared in granodiorite and was stopped at 108.8 meters. Minor amounts of scheelite were found in 1 to 5cm quartz veins but the vein spacing was not intense.

Hole 79-4 was located to test both the 39+400 and 39+800 skarn zones. This hole was stopped and abandoned due to extensive caving problems. Hole 79-5 was located to test the 39+400 skarn zone and was stopped shortly after as a result of extensive caving in a fault zone.

ASSAY PROCEDURES -

Gold: - Fire Assay Method.

0.5 assay ton sub samples are fused in litharge, carbonate and silicious fluxes. The lead button containing the precious metals is cupelled in a muffle furnace. The combined Ag & Au is weighed on a microbalance. parted annealed, and again weighed as Au. The difference in the two weighings is Ag.

Tungsten:

The pulps were rolled 100X, digested in HF, HCl and $H_3PO_4$, then transferred into a volumetric flask. An aliquot was pipetted into a colourimetric flask, reduced with $SnCl_2$ then complexed with KSCN. The yellow colour was compared to standards at 401 nm on a Spec. 700.

Tin:

A one gram sub sample is fused in a sodium peroxide - carbonate mix, leached in dilute HCl separated by Co-precipitation, then dissolved in HCl. The solution is then analyzed for tin by atomic absorption procedures.

Table 5 summarizes all zone thicknesses and grades described below.

Section AA', Map No. 22

Section AA' illustrates the geology of D.D.H. 79-8. This hole was drilled to test the north extension of the Garnet Skarn Zone. The Upper Zone was intersected at 29.9m to 42.6m and assayed 0.44% over 12.7m. Granodiorite was intersected at 43.8 meters and continued to the end of the hole. This may represent the main stock rather than a sill or dyke.

Section BB', Map No. 23

Section BB' illustrates the geology of D.D.H. 79-9. This hole intersected a thin lens of skarn interbedded with biotite quartzites from 18.3m. to 20.4m and 31.1m to 35.1m. Only low grade tungsten was found and the granodiorite stock was intersected at 35.8m.

Section CC', Map No. 24

Section CC' illustrates the geology of D.D.H. 79-12 and 79-11. D.D.H. 79-12 was drilled to test the mineralization to the south D.D.H. 79-9. This hole intersected two zones of mineralization. The Upper Zone from 30.4-33.0m has a grade of 0.29% $WO_3$. The Lower Zone is represented at 69.0-76.4m (0.72% $WO_3$) and 79.9-84.1m (0.68% $WO_3$). Granodiorite was intersected at 71.5m.

Diamond drill hole 79-11 was drilled on the western edge of the Garnet Skarn Zone near the intrusive contact to test the down dip extension of the mineralized Upper Zone. Small sections of the Upper Zone were intersected from 27.7m to 32.6 grading 0.32% $WO_3$. Granodiorite was intersected at 114.5m. This hole carries sulphides: mainly pyrite, pyrrhotite and arsenopyrite associated with quartz veins. It is possible that the veins are similar in origin to the gold-quartz vein system found on the property.

Section DD', Map No. 25

Section DD' illustrates the geology of D.D.H. 79-13, 79-6 and 79-10. D.D.H. 79-6 was located north of D.D.H. 79-1. Hole 79-6 intersected the Upper Zone from 45.6 - 49.1m, 58.2 - 61.0m and 65.7 - 71.8m. The average grade return from these sections are 0.38% $WO_3$ over 13.6m. The Lower Zone was intersected from 109.9 - 122.4m returning an average grade of 0.9% $WO_3$ over 12.5m. Granodiorite was intersected at 122.4m.

Hole 79-13 intersected the Upper Zone from 24.7 - 30.6m with an average grade of 0.46% over 5.9m and the Lower Zone from 78.8 - 93.0m with an average grade of 0.64% $WO_3$over 14.2m. Granodiorite was intersected at 91.0m.

Hole 79-10 was drilled west of D.D.H. 79-6 near the contact with the main intrusive to test the down dip extension of both the Upper and Lower Zones. This hole failed to test the Lower Zone due to its short length. The Upper Zone was intersected from 113.7 - 115.0m with an average grade of 0.57% $WO_3$.

Section EE', Map No. 26

Section EE' illustrates the geology of D.D.D 79-14. This hole was drilled 70 meters south of D.D.D. 79-6 to test the southern extension of the mineralized ore zone at both the Upper and Lower 1978 geochemical anomaly zones. This hole intersected the Upper Zone at 49.7 - 60.0m with an average grade of 0.32% $WO_3$ and the Lower Zone at 110.2 - 116.1m with an average grade of 1.28% $WO_3$. Granodiorite was intersected at 113.1m.

This unit of intrusive may possibly be a sill or another phase of aplitic dyke which has intersected the metsediments. The granodiorite has undergone weathering and faulting. These intrusive bodies have been cut by a quartz vein system carrying 8 mm size scheelite crystals. An arsenopyrite-quartz vein association is found within the Upper Zone.

Section FF', Map No. 27

Section FF' illustrates the geology of D.D.H. 79-15, 79-1 and 79-7. Hole 79-15 was drilled to the east and far from the contact with the intrusive. It failed to intersect the Lower Zone that was intersected in D.D.H. 79-1 and was stopped in the intrusive at 71.5m. Hole 79-1 was the deepest hole drilled in 1979. It was drilled to test an old trench with skarn float and intersected several lenses of skarn mineralization interbedded with quartzitic metasediments mainly from 17.4 - 29.5m in the Upper Zone with an average grade of 0.32% $WO_3$ and in the Lower Zone from 105.1 - 108.1m. 116.4 - 119.3m, 127.7 - 130.9m and 140.1 - 152.5m giving an average grade of 0.30% $WO_3$ over 47.4m. Granodiorite was intersected at 159.9m.

Hole 79-7 was drilled to the west of D.D.H. 79-1 near the intrusive contact. This hole was designed to test the down dip extension of the mineralized zones. This hole did not reach the Lower Zone and intersected only the Upper Zone at 68.1 - 72.7m with an average grade of 0.19% $WO_3$ and 88.7-95m with an average grade of 0.41% $WO_3$.

Section GG', Map No. 28

Section GG' illustrates the geology of D.D.H. 79-16 and 79-21. These holes were drilled to test the southern extension of the mineralized zone. Hole 79-16 intersected the Upper Zone from 20.7 - 22.7m with an average grade of 0.14% $WO_3$ and the Lower Zone from 121.0 - 124.0m with an average grade of 0.90% $WO_3$, 130.3 - 134.4m with an average grade of 0.53% $WO_3$. No granodiorite was intersected at the end of the hole.

Hole 79-21 was drilled only to 7.0m and stopped due to freezing of the water line. This hole will continue during the 1980 drilling programme in order to test the down dip extension of the mineralized zones intersected by hole 79-16.

Section HH', Map No. 29

Section HH' illustrates the geology of D.D.H. 79-17 and 79.2. Hole 79-17 was drilled to the east far from the contact with the intrusive and intersected several lenses of skarn interbedded with quartzitic metasediments. The Upper Zone, from 12.9 - 14.1m carried an average grade of 0.24% $WO_3$ and from 87.5 - 91.4m carried an average grade of 0.41% $WO_3$. Granodiorite was intersected at 129.7m.

Hole 79-2 was drilled to the west of 79-17 nearer the contact with the main granodioritic intrusive to test both the Upper and Lower Zones of skarn mineralization. This hole intersected the Upper and Lower Zones of skarn mineralization. This hole intersected the Upper Zone from 37.2m - 41.0m with an average grade of 0.56% $WO_3$ and the Lower Zone from 82.5 - 84.6m with an average grade of 0.35% $WO_3$. Granodiorite was intersected at 138.1m.

Section II' Map No. 30

Section II' illustrates the geology of hole 79-18. This hole was drilled 133m south of D.D.H. 79-2 to test the southern extension of the mineralized zones. The hole intersected several thin lenses of mineralized skarn units interbedded with quartzitic metasediments. The Upper Zone from 14.0 - 15.5m has an average grade of 0.16% $WO_3$. From 22.4 - 22.7m a quartz vein with an average grade of 1.71% $WO_3$ occurs. From 44.8 - 48.4m the Upper Zone has an average grade of 0.21% $WO_3$. The Lower Zone was intersected from 103.2 - 103.9m and 108.3 - 109.7m with an average grade of 0.15% $WO_3$. Granodiorite was intersected at 125.4m.

Section JJ' Map No. 31

Section JJ' illustrates the geology of hole 79-19. This hole was drilled south of Hole 79-18 to test the southern extenson of the mineralized

skarn zones. The Upper Zone was intersected from 18.2 - 19.5m with an average grade of 0.10% $WO_3$ and the Lower Zone was intersected from 94.7 - 96.6m with an average grade of 0.28% $WO_3$. No granodiorite was intersected.

Section KK' Map No. 32

Section KK' illustrates the geology of hole 79-20. This hole was drilled on the farthest south extremity of the garnet skarn zone to test its southern extension. Zones of significant thickness were not encountered. Thin sections of skarn mineralization were intersected in this hole from 13.7 - 15.4m with an average grade of 0.16% $WO_3$ and from 93.1 - 94.5m with an average grade of 0.19% $WO_3$.

Section LL' Map No. 33

Section LL' illustrates the geology of hole 79-4. This hole was drilled to test the 39+400E and 39+800E skarn zones. The hole was stopped and abandoned due the drilling problems. The main skarn zone was not intersected and is believed to be far deeper and nearer the contact with the intrusive lying to the north. Only biotite quartzites, buff quartzites and sheared chloritic rocks were intersected. A few lenses of skarn were encountered near the top of the hole.

Section MM' Map No. 34

Section MM' illustrates the geology of hole 79-3. This hole was drilled to test the 39+400E skarn zone and was collared in the intrusive granodiorite. Several quartz veins carrying scheelite crystals were intersected. This hole was drilled to 108.8m and then abandoned because it did not come out of the granodiorite.

## PRINCIPAL MINERALIZED SECTIONS INTERSECTED IN DRILLING

### DUBLIN GULCH - 1979

TABLE 5

| Hole No. | Footage (m) From | To | Length (m) | Average assay $WO_3$% | Mineralized Zone | Remarks |
|---|---|---|---|---|---|---|
| 79-1 | 17.1 | 29.5 | 12.1 | 0.32 | Upper zone | Massive-laminated green diopside skarn. |
| | 105.1 | 108.1 | 3.0 | 0.59 | Lower zone | Oxidation zone with biotite schist. |
| | 116.4 | 119.3 | 2.9 | 0.55 | Lower zone | Massive green garnet diopside skarn. |
| | 127.7 | 130.9 | 3.2 | 0.78 | Lower zone | Massive-laminated green diopside skarn. |
| | 140.1 | 152.5 | 12.4 | 0.59 | Lower zone | Massive green diopside skarn. |
| 79-2 | 37.2 | 41.0 | 3.8 | 0.56 | Upper zone | Massive green garnet diopside skarn. |
| | 82.5 | 84.6 | 2.1 | 0.35 | Lower zone | Green laminated diopside skarn. |
| 79-3 | | | | | | )No significant mineralization zone |
| 79-4 | | | | | | )in these holes. |
| 79-5 | | | | | | )These holes drilled on other zones. |
| 79-6 | 45.6 | 49.1 | 3.5 | 0.41 | Upper zone | Massive green diopside skarn. |
| | 58.2 | 61.0 | 2.8 | 0.44 | Upper zone | Massive green diopside skarn with garnet. |
| | 65.7 | 71.8 | 6.1 | 0.52 | Upper zone | Massive green diopside skarn with garnet. |
| | 109.9 | 122.4 | 12.5 | 0.90 | Lower zone | Massive green diopside skarn. Green diopside skarn and fault zone @ 121.8-122.4 m. |
| 79-7 | 68.1 | 72.7 | 4.6 | 0.19 | Upper zone | Massive green diopside skarn. |
| | 88.7 | 95.7 | 7.0 | 0.41 | Upper zone | Massive green diopside skarn. |

## PRINCIPAL MINERALIZED SECTIONS INTERSECTED IN DRILLING

TABLE 5

DUBLIN GULCH - 1979

| Hole No. | Footage (m) From | To | Length (m) | Average assay $WO_3$% | Mineralized Zone | Remarks |
|---|---|---|---|---|---|---|
| 79-8 | 29.9 | 42.6 | 12.7 | 0.44 | Upper zone | Massive green diopside skarn. |
| 79-8 | 18.3 | 20.4 | 2.1 | 0.28 | Upper zone | Massive green diopside skarn. |
| | 31.1 | 35.1 | 4.0 | 0.32 | Upper zone | Massive green diopside skarn. |
| 79-10 | 20.4 | 22.8 | 2.4 | 0.92 | Upper zone | Laminated green diopside skarn. |
| | 113.7 | 115.0 | 1.3 | 0.57 | Upper zone | Laminated light green diopside skarn. |
| 79-11 | 27.7 | 32.6 | 4.9 | 0.32 | Upper zone | Possible light green quartzite with oxidation. |
| | 70.4 | 73.3 | 2.9 | 0.20 | Upper zone | Quartz vein. |
| 79-12 | 30.4 | 33.0 | 2.6 | 0.29 | Upper zone | Massive-laminated diopside skarn with garnet. |
| | 69.0 | 76.4 | 7.4 | 0.72 | Lower zone | Green diopside skarn. |
| | 79.9 | 84.1 | 4.2 | 0.68 | Lower zone | Aplitic dyke in intrusive. |
| 79-13 | 7.4 | 9.1 | 1.7 | 0.23 | Upper zone | Massive-laminated green diopside skarn. |
| | 24.7 | 30.6 | 5.9 | 0.46 | Upper zone | Massive green garnet diopside skarn. |
| | 78.8 | 93.0 | 14.2 | 0.64 | Lower zone | Massive green diopside skarn and quartz vein in intrusive. |
| | 96.0 | 97.5 | 1.5 | 0.28 | Lower zone | Biotite granodiorite intrusive. |
| 79-14 | 49.7 | 60.0 | 10.3 | 0.32 | Upper zone | Massive green garnet diopside skarn. |
| | 86.7 | 90.3 | 3.6 | 0.54 | Lower zone | Massive-laminated green diopside skarn. |

## PRINCIPAL MINERALIZED SECTIONS INTERSECTED IN DRILLING

TABLE 5

DUBLIN GULCH - 1979

| Hole No. | Footage (m) From | To | Length (m) | Average assay $WO_3$% | Mineralized Zone | Remarks |
|---|---|---|---|---|---|---|
| 79-14 | 110.2 | 116.1 | 5.9 | 1.28 | Lower zone | Massive-laminated green diopside skarn. |
| 79-15 | 47.4 | 50.6 | 3.2 | 0.24 | Upper zone | Narrow lens of mineralization occurs between Lower and Upper Zone in massive-laminated green diopside skarn. |
| | 63.4 | 65.7 | 2.7 | 0.22 | Lower zone | |
| 79-16 | 20.7 | 22.7 | 2.0 | 0.14 | Upper zone | Massive-laminated green diopside skarn. |
| | 89.6 | 93.1 | 3.5 | 0.29 | Upper zone | Massive-laminated green diopside skarn. |
| | 121.0 | 124.0 | 3.0 | 0.90 | Lower zone | Massive green diopside skarn. |
| | 130.3 | 134.4 | 4.1 | 0.53 | Lower zone | Massive green diopside skarn. |
| 79-17 | 12.9 | 14.1 | 1.2 | 0.24 | Upper zone | Massive green diopside skarn associated with garnet. |
| | 58.2 | 60.2 | 2.0 | 0.33 | Lower zone | Massive green diopside skarn. |
| | 87.5 | 91.4 | 3.9 | 0.41 | Lower zone | Massive green diopside skarn in chloritic schist beds, (not included in ore reserve calculation). |
| 79-18 | 14.0 | 15.5 | 1.5 | 0.16 | Upper zone | Massive green diopside skarn (not included in ore reserves calculation). |
| | 22.4 | 22.7 | 0.3 | 1.71 | Upper zone | Quartz vein (not included in ore reserves calculation). |
| | 44.8 | 48.4 | 3.6 | 0.21 | Upper zone | Massive green diopside skarn (not included in ore reserves calculation). |

## PRINCIPAL MINERALIZED SECTIONS INTERSECTED IN DRILLING

### DUBLIN GULCH - 1979

TABLE 5

| Hole No. | Footage (m) From | To | Length (m) | Average assay $WO_3$ % | Mineralized Zone | Remarks |
|---|---|---|---|---|---|---|
| 79-18 | 103.2 | 103.9 | 0.7 | 0.27 | Lower zone | Massive green diopside skarn with garnet (not included in ore reserve calculation). |
| | 108.3 | 109.7 | 1.4 | 0.15 | Lower zone | Massive green diopside skarn (not included in ore reserves calculation). |
| 79-19 | 18.2 | 19.5 | 1.3 | 0.10 | Upper zone | Massive green diopside skarn (not included in ore reserves calculation). |
| | 94.7 | 96.6 | 1.9 | 0.28 | Lower zone | Massive green diopside skarn (not included in ore reserves calculation). |
| 79-20 | 13.7 | 15.4 | 1.7 | 0.16 | Upper zone | Massive green diopside skarn (not included in ore reserves calculation). |
| | 93.1 | 94.5 | 1.4 | 0.19 | Lower zone | Massive green diopside skarn (not included in ore reserves calculation). |
| 79-21 | Incomplete | | | | | |

Section NN' Map No. 35

Section NN' illustrates the geology of hole 79-5. This hole was drilled to test the 39+400 skarn zone and was stopped short due to extensive caving. It did not intersect the skarn zone which appears to be more steeply dipping due to intensive faulting. Thin skarn lenses occur but carry little scheelite. The fault zone is a major one and an intensely altered felsite dyke has intruded this zone of weakness. The dyke is brecciated and clay altered. The drill core material has the consistency of white lumpy mud. The petrographic studies from sample No. 6 and 7 indicates the rock is strongly brecciated with a breccia matrix and abundant veins composed of calcite and limonite. Calcite is very strongly twinned, and forms grains up to 1.5mm across. Limonite is extremely fire grained, and locally shows colloform textures.

Longitudinal Sections

Section OO' - Map No.36

Section OO' is 167m east of UTM coordinate line 463000E and illustrates the projected geology from drill holes 79-8, 79-9, 79-12, 79-13, 79-14, 19-15, 79-16, 79-17, 79-18, 79-19, 79-20. Examination of the geeology reveals the presence of thin continuous lenses of skarn units interbedded with quartzitic metasediments of various compositions. These units are intruded by the main granodiorite stock located at the north end of the section. The intrusive is within 29 meters of the surface at the north end of the section and plunges to a depth of approximately 132m near drill hole 79-18 at the south end of the section.

The skarn zones dip northwesterly, plunge to the north and come into contact with the granodiorite stock. There is an east-west faulting system perpendicular to the strike of the metasediments. The movement appears to have a small strike slip component in an east-west direction and normal faulting with the north block (north of D.D.H. 79-2) uplifted, and the south block (south of D.D.H. 79-2) down dropped. The displacement is not definitely known, but may be as much as 50 meters. The age of faulting in relation to mineralization is not known, but appears to be post intrusive and may have provided channel ways for the late state mineralizing solutions. It has not been determined satisfactorily if there is any change in concentration of the mineralization adjacent to faults. It appears that mineralization within the skarn units is directly related to the granodiorite stock that carries scheelite bearing veins.

The skarnification of limey rocks would provide the essential porosity needed for mineralizing fluid migration. Preliminary layout of diamond drill holes proposed for 1980 in the vicinity of drill holes 79-17, 79-16, 79-1 and 79-14 should be deepended more than indicated on Table 7, this would test the down dip geology and determine the intrusive-metasediment contact. Quartz veins with arsenopyrite mineralization similar to those found on the fissure system were intersected in holes 79-14, 79-17.

Section PP' Map No. 37

Section PP' is 85m east of UTM coordinate line 463000E and illustrates the projected geology of drill holes 79-9, 79-11, 79-10, 79-14, 79-16, 79-7, 79-2, 79-18, 79-19, 79-20. This section is 82 meters west of Section 00' and is similar to 00' by revealing the presence of several continuous thin lenses of skarn units interbedded with quartzitic metasediments. These units are intruded by the main granodiorite stock and cut by small faults. The intrusive is found at greater depths towards the west and plunges to a depth of approximately 100m near the north end of the section in the proximity of drill hole 79-8. The intrusive also plunges off to

greater depths to the south as well. The metasediment-intrusive contact is not present in all the holes drilled in this section, even at depths of 130 meters.

Small sills or dykes of granodiorite composition are injected between quartzitic metasediment units of the Garnet Skarn Zone. These sills have granitic textures, with narrow fine grained chill margins. The ore minerals include scheelite, trace pyrite, pyrrhotite and quartz veins with arsenopyrite intersected primarily in drill hole 79-11. This mineralization is similar to that found on the fissure system.

A number of steep faults have been identified by diamond drill holes and they cut the mineralized zones. The faults also crosscut the granodiorite stock and dykes. The fault zones are not expressed well at surface on the Garnet Skarn Zone. Several mineralized skarn zones have been offset by the fault movement. The overall significance of faulting in terms of total displacement is not fully understood, primarily due to lack of evidence at surface which would give an idea of attitudes and strength of the fault zones. At this stage of drilling, it is difficult to interpret the structural findings in the core.

Examination of the ore bearing skarns and wallrocks has revealed no obvious alteration halo or simple mineralogical guide to ore bodies within the quartizitic metasediments. It was thought that garnet bearing skarns would be a definite marker of an ore horizon, but this is no longer true. Pyrite and pyrrhotite are found as minute disseminations within the skarn as well as in quartzitic metasediments.

## RESULTS

### Section 00'

The Upper Zone appears to be thin continuous lenses of skarn with extensive faults offsetting the mineralized zones. The Upper Zone extends to about 45m south of hole 79-9 and then is offset by a minor fault with an average displacement of 5m.

A number of faults cut the Upper Zone some 59m south of hole 79-12 with average displacement of 13m. It appears that the northern extension of the Upper Zone has been down dropped in an area 50m south of hole 79-13. Several thin lenses of skarn are intersected in hole 79-13. In hole 79-1 the Upper Zone appears to be offset by a 35m fault between hole 79-1 and 79-2. In hole 79-16 the Upper Zone appears to be just above the granodiorite intrusive. South of hole 79-17 no ore reserves were calculated for the Upper Zone. Due to lack of information at depth, it appears that several lenses of skarn interbedded with quartzite metasediments with low grade tungsten mineralization belonging to the Upper Zone, were faulted off and are located at depth beyond our 1979 drilling depths.

### Lower Zone

The Lower Zone was intersected in hole 79-12, but due to extensive faulting, this zone was found at a lower depth when intersected in hole 79-13. The Lower Zone where intersected by hole 79-12, is located above the granodiorite stock and is also near the contact with granodiorite in hole 79-13. This indicates faulting may have been post intrusion. The Lower Zone continues into hole 79-14 with minor fault displacements.

The major fault occurs between hole 79-14 and hole 79-1. An intrusive sill found just below the Upper Zone in holes 79-1 and 79-7 is offset between 79-1 and 79-14. The Lower Zone appears to be down dropped almost 40 meters in hole 79-1 and compared to 79-14. The Lower Zone appears to continue in holes 79-16 and 79-17 with only minor displacements.

Moving south along the section, several thin skarn lenses with low grade scheelite mineralization are interbedded within quartzite metasediments. This area should be tested with deeper holes in order to locate better mineralized skarn zones near the contact with granodiorite.

Section PP'

This section is located 82m west of OO' section, and all of diamond drill holes were drilled to the east. It appears that the Upper and Lower Zones of skarn mineralization are at greater depth and thus down dip from Section OO'. Section PP' is similar to Section OO' in that both zones have been offset by faulting systems that cut the metasediments and granodiorite intrusive with minor displacements generally less than 10 meters.

Ore Reserve Calculation

Due to the presence of a mineralized skarn zone outlined by the 1979 diamond drill programme, ore reserve calculations of the area were undertaken in order to ascertain the possible grade and tonnage. This information would determine to a considerable extent, the direction of the 1980 drill programme.

An attempt was made to distinguish between probable and possible ore reserves with consideration given to the fact that further work is required to evaluate this prospect. With limited drilling and wide hole spacing none of the reserves could be brought up to the proven ore reserves level.

Since two zones of scheelite mineralization were encountered in drilling, the cut off grade for each zone was determined by the eventual possibility of mining the Garnet Skarn Zone as an open pit mine. Probable reserves are calculated for both the Upper and Lower skarn zones and possible reserves were calculated for only the Lower Zone projected to the surface. The reserves for the Upper Zone were calculated from 8 sections (AA' to HH') for a total distance of 649 meters.

Reserves were taken from diamond drill holes on each section and in all calculations the true thickness as determined from the cross section was employed. Width of the mineralized zone was calculated from an assumed stripping ratio or 15m past the diamond drill. Length along strike was taken at half interval distances between each station (i.e. next drill hole). Ore reserves calculations are shown on each section.

A similar method was applied for the "probable" ore reserves calculation for the Lower Zone. For sections CC' - HH' the zone was projected to the surface and calculated as "possible" reserves for the Lower Zone.

The Upper Zone was found to contain probable ore reserves of 1,430,174 tons grading 0.36% $WO_3$, and the Lower Zone was found to contain 1,054,852 tons grading 0.57% $WO_3$ of "probable" reserves and 2,873,963 tons grading 0.51% $WO_3$ of "possible" reserves.

A summary outlining the method of calculation, ore and grade for each skarn zone assuming a tonnage factor of 10 cubic feet of rock/ton of ore is given in Table 6.

## PROBABLE MINERAL RESERVES - UPPER ZONE

TABLE 6

| Section | Diamond Drill Hole | Volume L x T x W | Grade $WO_3$ | Tonnage Tons | Product Tonnage x Grade STU |
|---|---|---|---|---|---|
| AA' | 79-8 | 164 x 42 x 262.4 | 0.44 | 180,741 | 79,526.04 |
| BB' | 79-9 | 230 x 13 x 154 | 0.32 | 46,046 | 14,734.72 |
| CC' | 79-11 | 331.4 x 16.1 x 246.1 | 0.32 | 131,308 | 42,018.56 |
| | 79-12 | 331.4 x 8.5 x 148 | 0.29 | 41,690 | 12,090.10 |
| DD' | 79-6, 79-13 | 288.7 x 27.6 x 406.8 | 0.43 | 324,143 | 139,381.49 |
| EE' | 79-14 | 233 x 33.8 x 341.2 | 0.32 | 268,709 | 85,986.88 |
| FF' | 79-1, 79-7 | 256 x 27.2 x 459 | 0.28 | 319,611 | 88,491.08 |
| GG' | 79-16 | 272 x 6.0 x 202 | 0.24 | 32,966 | 7,911.84 |
| HH' | 79-2 | 354 x 12.5 x 192 | 0.56 | 84,960 | 47,577.6 |
| | | Divide each L x T x W by tonnage factor of 10. | | | |
| TOTAL | | | 0.36% | 1,430,174 | 518,718.31 |

## PROBABLE MINERAL RESERVES - LOWER ZONE

TABLE 6

| Section | Diamond Drill Hole | Volume L x T x W | Grade $WO_3$% | Tonnage Tons | Product Tonnage x Grade STU |
|---|---|---|---|---|---|
| CC' | 79-11, 79-12 | 331.4 x 47.6 x 98.4 | 0.57 | 155,223 | 88,477.11 |
| DD' | 79-13, 79-6 | 288.7 x 44.0 x 285.4 | 0.76 | 362,538 | 275,528.88 |
| EE' | 79-14 | 233.0 x 19.4 x 100.0 | 1.28 | 45,202 | 57,858.56 |
| FF' | 79-1 | 256.0 x 155.5 x 98.0 | 0.30 | 390,118 | 117,035.40 |
| GG' | 79-16 | 272.0 x 10.0 x 98.0 | 0.90 | 26,656 | 23,990.40 |
| HH' | 79-2, 79-17 | 354.0 x 6.6 x 321.5 | 0.34 | 75,115 | 25,539.10 |
| | | Divide each L x T x W by tonnage factor of 10. | | | |
| TOTAL | | | 0.56% | 1,054,852 | 588,429.45 |

## POSSIBLE MINERAL RESERVES - LOWER ZONE

TABLE 6

| Section | Diamond Drill Hole | Volume L x T x W | Grade $WO_3$% | Tonnage Tons | Product Tonnage x Grade STU |
|---|---|---|---|---|---|
| CC' | 79-12 | 331.4 x 33.8 x 429.8 | 0.39 | 481,433 | 187,758.87 |
| DD' | 79-13 | 288.7 x 46.6 x 41.0 | 0.64 | 551,590 | 353,017.60 |
| EE' | 79-14 | 233.0 x 19.4 x 626.6 | 1.28 | 283,236 | 362,542.08 |
| FF' | 79-1 | 256.0 x 94.0 x 554.5 | 0.30 | 1,334,349 | 400,304.70 |
| GG' | 79-16 | 272.0 x 10.0 x 545.0 | 0.90 | 148,240 | 133,416.00 |
| HH' | 79-17 | 354.0 x 6.6 x 321.5 | 0.33 | 75,115 | 24,787.95 |
| | | Divide each L x T x W by tonnage factor of 10. | | | |
| TOTAL | | | 0.51% | 2,873,963 | 1,461,827.10 |

TABLE 6

ORE RESERVES CALCULATION

GARNET SKARN ZONE

| Zone | Grade $WO_3$% | Tons |
|---|---|---|
| 1. Probable mineral reserves - Upper zone. | 0.36 | 1,430,174 |
| 2. Probable mineral reserves - Lower zone. | 0.56 | 1,054,852 |
| 3. Possible mineral reserves - Lower zone. | 0.51 | 2,873,963 |
| Total possible reserves | 0.48 | 5,358,989 |

## SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

A varied programme of diamond drilling, trenching, sampling and geological mapping was conducted during the 1979 field season by Canada Tungsten personnel on the Garnet Skarn Zone.

The diamond drilling programme helped to give a better understanding of the geology of the deposit and the results of this programme emphasize the possible ore potential of the Garnet Skarn Zone and other skarn zones near the contact with the granodiorite stock.

Preliminary reserves under the "possible-probable" category were calculated using results from the diamond drill programme. Results indicate a "possible" 5,358,989 tons of ore grade material at 0.48% $WO_3$ which may be mineable by open pit methods.

From the positive results of the 1979 programme, additional diamond drilling of the Garnet Skarn Zone is recommended. This will be in the form of continued diamond drilling to further delineate the Upper and Lower ore zones discovered within the Garnet Skarn Zone. Aprroximately 4910 meters of step out diamond drilling along Sections AA' to JJ' is the minimum footage required to extend the Upper Zone to the west and the Lower Zone to the east and west (See Map 20 ). Further fill-in drilling will be required at some stage to ultimately obtain accurate tonnage and grade. Several proposed drill holes are summarized in Table 7.

FOOTAGE PROPOSED FOR 1980 DIAMOND DRILL PROGRAMME TABLE 7

GARNET SKARN ZONES

DUBLIN GULCH PROPERTY

| Sections | Diamond Drill Hole | Az° | Dip° | Footage m | Remarks |
|---|---|---|---|---|---|
| AA' | 80-1 | 90 | 70 | 100 | To test the Lower Zone extension to the east. |
| AA' | 80-2 | 90 | 70 | 150 | To test the Upper Zone and Lower Zon extension to the west. |
| BB' | 80-3 | 90 | 70 | 90 | To test the Lower Zone extension to the east. |
| BB' | 80-4 | 90 | 70 | 140 | To test the Upper and Lower extensio to the west. |
| Between BB' and CC' | 80-5 | 90 | 70 | 130 | To test the Upper and Lower Zone |
| CC' | 80-6 | 90 | 70 | 70 | To test the Lower Zone extension to the east near the surface. |
| CC' | 80-7 | 90 | 70 | 90 | To test the Lower Zone extension to the east. |
| CC' | 80-8 | 90 | 70 | 180 | To test the Upper and Lower Zone to the west. |
| Between CC' and DD' | 80-9 | 90 | 70 | 120 | To test the Upper and Lower Zone |
| DD' | 80-10 | 90 | 70 | 90 | To test the Lower Zone to the east near the surface. |
| DD' | 80-11 | 90 | 70 | 125 | To test the Lower Zone to the east |
| DD' | 80-12 | 90 | 70 | 203 | To test the Upper and Lower Zones to the west. |
| Between DD' and EE' | 80-13 | 90 | 70 | 130 | To test the Upper and Lower Zones |

FOOTAGE PROPOSED FOR 1980 DIAMOND DRILL PROGRAMME TABLE 7

GARNET SKARN ZONES

DUBLIN GULCH PROPERTY

| Sections | Diamond Drill Hole | Az° | Dip° | Footage m | Remarks |
|---|---|---|---|---|---|
| EE' | 80-14 | 90 | 70 | 65 | To test the Lower Zone to the east near the surface. |
| EE' | 80-15 | 90 | 70 | 140 | To test the Lower Zone extension to the east. |
| EE' | 80-16 | 90 | 70 | 180 | To test the Lower and Upper Zones extension to the west. |
| Between EE' and FF' | 80-17 | 90 | 70 | 160 | To test the Upper and Lower Zones |
| FF' | 80-18 | 90 | 70 | 100 | To test the Lower Zone extension to the east, near surface. |
| FF' | 80-19 | 90 | 70 | 130 | To test the Lower Zone extension to the east. |
| FF' | 80-20 | 90 | 70 | 300 | To test the Upper and Lower Zone extension to the west. |
| Between FF' and GG' | 80-21 | 90 | 70 | 160 | To test the Upper and Lower Zones |
| GG' | 80-22 | 90 | 70 | 100 | To test the Lower Zone extension to the east, near surface. |
| GG' | 80-23 | 90 | 70 | 125 | To test the Lower Zone extension to the east. |
| GG' | 80-24 | 90 | 70 | 180 | To test the Upper and Lower Zones extension to the west. |
| Between GG' and HH' | 80-25 | 90 | 70 | 147 | To test the Upper and Lower Zones |

FOOTAGE PROPOSED FOR 1980 DIAMOND DRILL PROGRAMME

TABLE 7

GARNET SKARN ZONES

DUBLIN GULCH PROPERTY

| Sections | Diamond Drill Hole | Az° | Dip° | Footage m | Remarks |
|---|---|---|---|---|---|
| HH' | 80-26 | 90 | 70 | 100 | To test the Lower Zone extension to the east, near surface. |
| HH' | 80-27 | 90 | 70 | 173 | To test the Lower Zone extension to the east. |
| HH' | 80-28 | 90 | 70 | 225 | To test the Upper and Lower Zones extension to the west. |
| HH' | 80-29 | 90 | 70 | 240 | To test the Upper and Lower Zones to the west near the contact with intrusive. |
| Between HH' and II' | 80-30 | 90 | 70 | 145 | To test the Upper and Lower Zones |
| II' | 80-31 | 90 | 70 | 100 | To test the Lower extension to the east near the surface. |
| II' | 80-32 | 90 | 70 | 150 | To test the Lower extension to the east. |
| II' | 80-33 | 90 | 70 | 230 | To test the Upper and Lower Zones extension to the west near the contact with intrusive. |
| Between II' and JJ' | 80-34 | 90 | 70 | 142 | To test the Upper and Lower Zones |
| TOTAL | | | | 4910.0 m | |

# APPENDIX 1

## Petrographic Analysis of Trench Samples and Drill Core Samples

## ROCK AND CORE SAMPLES SENT FOR PETROGRAPHIC ANALYSIS

| No. | | Sample Number | Sample Location |
|---|---|---|---|
| 1 | Biotite-quartz schist with green fluorescent mineral. | WG1 | DDH 79-2 at 230' |
| 2 | Biotite granodiorite | WG2 | DDH 79-2 at 467' |
| 3 | Biotite granodiorite | WG3 | DDH 79-3 at 177' |
| 4 | Biotite-quartz schist with green fluorescent mineral. | WG4 | DDH 79-4 at 254' |
| 5 | Possible chlorite schist alteration. | WG5 | DDH 79-5 at 200' |
| 6 | Breccia zone | WG6 | DDH 79-5 at 287.5' |
| 7 | Similar to Sample #WG5 | WG7 | DDH 79-5 at 366.5' |
| 8 | Biotite-quartz schist with green fluorescent mineral. | WG8 | DDH 79-7 at 96.5' |
| 9 | Folded biotite-quartz schist. Contact zone with intrusive. | WG9 | DDH 79-10 at 204.5' |
| 10 | Similar to WG9 | WG10 | DDH 79-10 at 228.5' |
| 11 | Biotite-quartz schist with green fluorescent mineral. | WG11 | DDH 79-14 at 207.5' |
| 12 | Biotite-quartz schist with pyrite, pyrrhotite mineralization. | WG12 | Float sample |
| 13 | Massive green diopside skarn. | | Trench No.5 |
| 14 | Vitreous diopside skarn with scheelite. | | Trench No.9 |

| No. | | Sample Number | Sample Location |
|---|---|---|---|
| 15 | Light green laminated diopside skarn. | | 39+800 |
| 16 | Massive green diopside skarn. | | 39+850 |
| 17 | Massive green diopside skarn. | | DDH 79-14 |
| 18 | Vitreous diopside skarn | | DDH 79-6 |
| 19 | Massive green diopside skarn. | | 39+800 |
| 20 | Massive green diopside skarn. | | Trench 10 |
| 21 | Massive green diopside skarn. | | 40+150 |

1. Trench #5. Poorly laminated pyroxene-plagioclase-clinozoisite skarn

Unlike the massive skarns, this sample shows a relatively fine average grainsize and possesses laminations due to variations in the pyroxene-plagioclase ratio. Two prominent felsic segregations appear in the thin section. One is planar, 1 cm across, and parallels the fine laminations. It consists mostly of clinozoisite. The unoriented laths visible within it in hand sample are clinozoisite aggregates, perhaps after euhedral pyroxene. The other segregation has a more uneven outline. It cuts across the laminations in the skarn. It is an aggregate of coarse squarish plagioclase in a finer mosaic of plagioclase, and may be a dikelet.

A parallel set of fine fractures cuts the sample at approximately $85^{o}$ to the foliation.

Mode

| | |
|---|---|
| 40 | pyroxene |
| 35 | plagioclase(An 50) |
| 15 | uralite |
| 9 | clinozoisite |
| 1 | chlorite |
| <1 | kspar |
| <1 | sphene |
| <1 | opaque |
| <1 | apatite |
| <1 | allanite |
| <1 | white mica |

Pale green pyroxene (diopside-hedenbergite solid solution) forms granular aggregates. In crosscutting veins pyroxene grains are larger than average.
Plagioclase generally forms mosaics of small grains in light laminations and in the large segregation. Scattered grains in the latter are large and squarish with complex Carlsbad and lamellar twinning patterns. A few show oscillatory zoning.
Uralite ( bright green secondary amphibole after pyroxene ) is seen in several habits: as ragged prisms; as needles in plagioclase; and interstitial to pyroxene. The degree of uralitization varies across the slide.
Clinozoisite occurs in the prominent planar segregation as large to small grains with irregular edges. A few anhedral pyroxene remnants suggest that this clinozoisite aggregate has replaced earlier pyroxene skarn.
Chlorite masses occur interstitially in the clinozoisite layer, and like the clinozoisite are probably after pyroxene.
A trace of kspar is confined to the large felsic segregation.
Small sphene euhedra are scattered throughout the section.
Fine interstitial opaque material forms irregular grains and clumps.
Scattered very small apatite prisms were observed.
Allanite was seen only in and near the large plagioclase segregation.
Small anhedral white mica plates accompany clinozoisite.

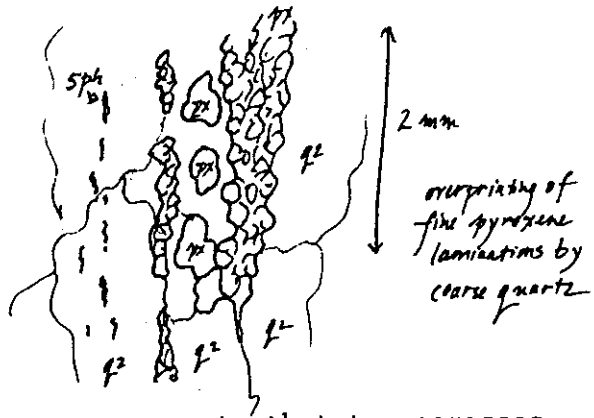
2. Trench #9. Laminated quartz-pyroxene-plagioclase skarn

The abundance of quartz is noticeable in this scheelite-bearing skarn. Original laminations due to varying pyroxene-plagioclase ratios and grainsize variations are in the process of being obscured by the growth of later coarse grained quartz.

The vitreous appearance of this skarn is due to the high quartz content : hand sample appearance is thus a useful exploration tool.

Mode

| | |
|---|---|
| 59 | quartz |
| 25 | pyroxene |
| 15 | plagioclase |
| 1 | scheelite |
| <1 | allanite |
| <1 | apatite |
| <1 | sphene |
| <1 | uralite |
| <1 | kspar |




Very large interlocking quartz grains form an aggregate that transgresses earlier laminations. Some quartz-rich segregations parallel the laminations, however. This is a mimetic texture. Individual quartz grains commonly include many smaller pyroxene and plagioclase grains.

Pale green pyroxene forms a granular aggregate in monomineralic patches and layers; elsewhere individual grains are anhedral. Some in quartz show skeletal morphology. Next to a distinctly finer grained lamination dominated by plagioclase, pyroxene forms continuous laminations a single grain in width. Some of the larger grains are poorly formed prisms with their long dimensions in the plane of foliation.

Plagioclase forms anhedral grains accompanying pyroxene; one distinct lamination is composed of very fine mosaic plagioclase with subordinate pyroxene.

Isolated scheelite grains .2 to 5 mm in diameter are confined to quartz-rich areas. They are euhedral to subhedral and include euhedral pyroxene and plagioclase, indicating later growth than the main mineral phases of these skarns.

Allanite grains are very small and occur either next to or inside pyroxene clumps.

Small apatite prisms are scattered sparsely in the section.

Small sphene euhedra and spindle-shaped anhedra help to define the laminations.

Uralite is developed interstitially in pyroxene-rich layers. It is noteworthy that high scheelite concentration is not associated with abnormal degrees of uralitization: although scheelite and quartz were introduced after the main stage of skarn formation, they predate the secondary alteration typified by uralite.

Fine kspar occurs at the edge of a prominent plagioclase-rich layer.

3. 39+800(1). Poorly laminated pyroxene skarn

Weak laminations in this sample, defined by pyroxene grainsize and variations in pyroxene abundance ( many areas are almost monomineralic ), turn and pinch out on thin section scale. The hand sample is cut by a set of fine parallel fracture veinlets which cut the laminations at about 85°.

Mode

| | |
|---|---|
| 85 | pyroxene |
| 7 | actinolite, uralite |
| 4 | calcite |
| 3 | quartz |
| 1 | plagioclase |
| <1 | chlorite |
| <1 | scheelite |
| <1 | FeOxides |

Pale green pyroxene tends to form even grained granular aggregates ( average diameter .05 mm ). Some laminations consist of very coarse ( to 2 mm ) prismatic pyroxene. Pyroxene develops euhedral faces against plagioclase and quartz.
Clear, fibrous to ragged actinolite replaces pyroxene in one lamination. It is accompanied by unusually abundant interstitial calcite.
Bright green uralite occurs in the fracture veinlets and next to them. It also forms patches in the matrix.
Large skeletal calcite grains enclose areas of pyroxene. Calcite is a common interstitial phase. In veinlets, it cuts across the pyroxene matrix.
Quartz fills interstices. Grains tend to be poikilitic, containing pyroxene and in some cases plagioclase.
Plagioclase relief is higher than quartz, implying a relatively calcic composition. It occurs interstitially; a few grains are subhedral. It is espec ially noticeable in the coarse grained lamination. Oscillatory zoning was observed in a few cases.
Small chlorite masses in the actinolite lamination are elongated parallel to the foliation, although individual plates within them show random orientations. They are cut by calcite veinlets.
Two anhedral scheelite grains .2 mm in diameter lie within the pyroxene fabric.
Reddish Fe Oxides occupy vugs.

4. 39+850. Laminated pyroxene-quartz skarn

The laminations in this sample appear streaky. The finer grained layers pinch out, possibly due to replacement by coarser grained material. Most of the laminations are caused by strong grain size contrast; there is one which is dominated by plagioclase as opposed to pyroxene.

Mode

| | |
|---|---|
| 89 | pyroxene |
| 5 | quartz |
| 3 | uralite |
| 2 | calcite |
| 1 | plagioclase |
| <1 | scheelite |
| <1 | allanite |

Pyroxene is generally coarse grained. Most is pale green; one clear core was observed. It is rarely lamellar twinned. Euhedral outlines develop in places against calcite.
Calcite is the most abundant interstitial material.
Quartz fills interstices between pyroxene grains. Near the top of the section it forms very large grains poikilitically enclosing pyroxene: this is similar to the textures in the "vitreous" samples.
Bright green uralite grows as patches within and between pyroxene grains. It is unevenly distributed but tens to follow the trend of the laminations.
Plagioclase is mostly a scattered intersitial phase, although it does dominate one fine lamination. A few large plagioclase grains show lamellar twinning.
Anhedral scheelite grains grow in interstices with calcite.
A few scattered anhedral allanite grains were seen.

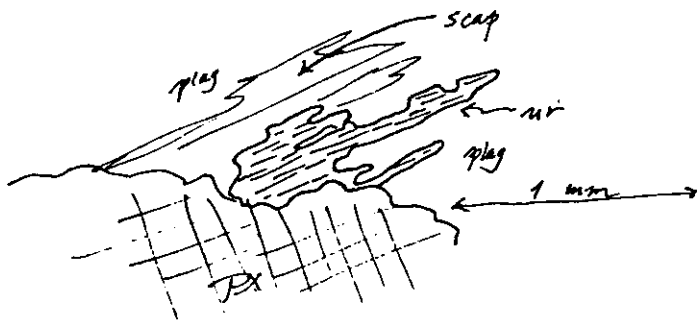
5. 79-14. Massive pyroxene-quartz skarn

This sample is characterized by patchy grainsize variations. The presence of scapolite shows the influence of metasomatism.

Mode

75 pyroxene
20 quartz
3 uralite
2 Fe-oxides
<1 scapolite, plagioclase

Pale green pyroxene varies from fine to unusually coarse grained ( .05 through an average of .2 mm up to 1 cm diameter ). The larger grains have prismatic habits. Against quartz, pyroxene grains are euhedral to subhedral to rounded. Pyroxene masses are lepidoblastic to grainular. Quartz is interstitial to pyroxene, and also forms large crystals 2 to 3 mm across which surround pyroxenes. The percent of quartz is variable from place to place in the section.
Uralite grows, as is commonly the case in this suite, between pyroxenes. It also forms elongate prisms aligned within plagioclase with secondary scapolite.
Rare plagioclase is partly replaced by scapolite, which occurs as elongate mimetic growths and prisms.
Fe-oxides stain grain boundaries.




mimetic growth of uralite and scapolite in plagioclase

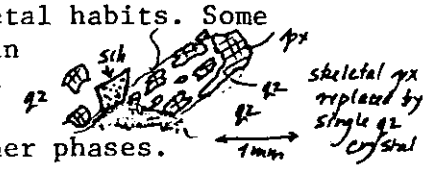
6. 79-6. Layered pyroxene-plagioclase-quartz-scheelite skarn

The layering in this sample is defined by lensoid plagioclase segregations at about 90° to the core axis. The vitreous appearance is due to the abundance of quartz. It is generally a coarse-grained rock with average grainsize between 2 and 5 mm. The association of abundant quartz and abundant scheelite is notable.

Mode

40 pyroxene
30 quartz
20 plagioclase ( An 20-26 )
10 scheelite
< 1 allanite
< 1 calcite
< 1 apatite
< 1 uralite

Pale green pyroxene has euhedral, subhedral and skeletal habits. Some of the skeletal grains appear to have been replaced in part by single quartz crystals. A few pyroxene prisms show lamellar twinning.




Coarse anhedral interlocking quartz surrounds the other phases.
Plagioclase forms large complexly twinned crystals which resemble magmatic more than metamorphic plagioclase. They show delicate oscillatory zoning. Their Na-rich compositions are unusual in a skarn environment and show the effects of magmatic fluids.
Large to small euhedral and subhedral allanite prisms show oscillatory zoning.
Scheelites generally grow within quartz. They tend to be euhedral. Some include or grow around pyroxenes, but pyroxenes were also observed to contain euhedral scheelite crystals.
Calcite fills a few interstices and in one case occurs inside scheelite.
Scattered small apatite prisms grow within quartz.
Rare uralite replaces pyroxene along grain boundaries : the negative correlation of late alteration and abundant scheelite is made especially clear by this sample.

7. 39+800(2). Weakly laminated pyroxene-calcite-quartz skarn

This sample shows a faint streaky foliation, although it is mostly massive.

Mode

| | |
|---|---|
| 72 | pyroxene |
| 10 | calcite |
| 8 | quartz |
| <1 | scheelite |
| <1 | sphene |
| <1 | white mica |
| <1 | allanite |
| 10 | uralite |

Pale green pyroxene shows two habits : granular ( average .5 mm diameter ) and ragged to skeletal prismatic ( up to 3 mm long ).
Calcite grows interstitially to pyroxene; in a few cases it penetrates into pyroxene along its cleavages.
Quartz is interstitial to pyroxene. Many grains poikilitically include small pyroxenes.
Uralite in evenly scattered patches grows around pyroxene aggregates and into them along grain boundaries. One major concentration occurs in a band with sphene.
Scheelite forms anhedral grains and clumps up to 1 mm in diameter. It is rare.
Isolated small sphene euhedra occupy a single thin lamination.
A few plates of fine white mica accompany calcite in a coarse patch interstitial to pyroxene.
Allanite grains are anhedral and scattered across the section.

8. Trench 10. Massive pyroxene-quartz-plagioclase skarn

This skarn is relatively coarse grained and lacks a laminated fabric. Its vuggy appearance may be due to removal of quartz. It is cut by a set of fine fracture veinlets which contain Mn-oxides. The sample is strongly Fe-stained. Secondary amphibole alteration is strong.

Mode

45 pyroxene
30 quartz
15 uralite
5 plagioclase (An 45-20)
4 Fe, Mn oxides
1 scheelite

Pyroxene grains are prismatic, ranging up to 4 mm long.
Quartz fills interstitial cavities as single grains, one in the slide 1.5 by 2 cm. It also occurs in the fine fractures. Where one of these cuts across the large quartz grain reorientation of the crystal structure has occurred.
Uralite ranges from bright to pale green. It grows as fiber in quartz, as patches in and pseudomorphs of pyroxene, and partial pseudomorphs along the pyroxene cleavages. Alteration is stronger around some of the fractures.
Euhedral plagioclase crystals enclosed in quartz show oscillatory zones with as many as 10 repetitions. The general trend of the soning is normal.
Scheelite grains range from .05 to..2 mm in diameter. They are euhedral to anhedral and scattered within the quartz patches. Where they grow against pyroxene they conform to its crystal outlines.
Oxides stain grain boundaries and fracture surfaces.

9. 40+150. Weakly laminated pyroxene-quartz-plagioclase-calcite skarn

Variations in pyroxene content give this sample a very weak planar fabric. It is very quartz-rich, but lacks scheelite.

Mode

43 pyroxene
42 quartz
5 calcite
4 uralite
3 clinozoisite
3 plagioclase
<1 sphene
<1 allanite
<1 white mica

Pyroxene is granular to euhedral and normally surrounded by quartz. Some aggregates are present.
Quartz forms a coarse interlocking aggregate with grains up to 6 mm across. A few quartz grains in calcite are euhedral.
Like quartz, calcite is coarse and interstitial to pyroxene-rich areas. In some more altered bands and patches grains reach 2 mm in diameter. Calcite commonly includes smaller pyroxene grains.
Bright green uralite shows patchy development but a tendency to follow the preexisting layers.
Plagioclase occurs in patches interstitial to pyroxene.
Sphene grains are euhedral to rounded; some occur in clusters.
Rare anhedral allanites are very small.
White mica grows along the cleavages in a few plagioclase grains.

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Samples: WG-1 to -12 inclusive

The samples are divided into the following types:

Intrusive Rocks

1) Granodiorite: WG-2, WG-3
2) Quartz Monzonite: WG-10

Contact Metamorphic Rocks

1) Andalusite-bearing Gneiss, banded with felsic and mafic layers
   WG-1
   WG-8
   WG-9 (some layers with quartz monzonite composition formed by partial melting)
   WG-10
   WG-11

2) Diopside-bearing Gneiss, banded with fine grained plagioclase-rich layers
   WG-4
   WG-5 (strongly altered)
   WG-12 (abundant pyrrhotite)

3) Quartz-rich Gneisses, strongly brecciated

   WG-6 quartzite
   WG-7 feldspar-quartz gneiss

The rocks into which the intrusive magmas were emplaced probably were already gneissic. Contact metamorphic textures and mineralogies were superimposed on original metamorphic rocks. The relation of the brecciation to the other events is unknown, except that it probably is much later than the contact metamorphic event.

John Payne

John Payne,
November, 1979.

Rec: Oct 18; shipped: Nov 7.

WG-1 79-2 230' Hornfelsed Banded Gneiss

The rock contains felsic and mafic bands which are coarsely interlayered; the thin section is of a mafic layer.

| | | |
|---|---|---|
| biotite | 20-25% | |
| muscovite | 20-25 | |
| andalusite | 20-25 | |
| quartz | 10-15 | |
| plagioclase | 5- 7 | |
| K-feldspar | 5- 7 | |
| opaque | 3- 5 | (mainly pyrite) |
| Ti-oxide | minor | |
| tourmaline | trace | |
| zircon | trace | |

vein: composite, mainly plagioclase with patches containing one or more of chlorite, quartz, muscovite, K-feldspar

Andalusite forms elongate prismatic grains up to 6 mm in length. They are irregularly altered along grain borders and fractures to muscovite aggregates. Andalusite shows a greenish-white fluorescence. Many grains contain abundant tiny irregular inclusions of opaque.

Muscovite forms laths and irregular grains averaging 0.2-0.3 mm in size. They are slightly concentrated in certain zones with andalusite.

Biotite is concentrated in zones lower in muscovite and andalusite; it forms patches of irregular grains and scattered laths up to 0.5 mm in size, and locally forms very ragged laths from 0.05-0.15 mm in size intergrown with muscovite, plagioclase, and quartz.

Quartz and feldspars form grains averaging 0.05-0.1 mm in size; these are slightly concentrated in irregular felsic patches and lenses, and generally have a mosaic texture.

Opaque, mainly pyrite, forms irregular patches up to 1 mm across, commonly with muscovite and quartz, or with andalusite.

Ti-oxide forms scattered anhedral grains averaging 0.1 mm in size.

Tourmaline forms a few subhedral to euhedral grains up to 0.1 mm long; prismatic grains are pleochroic from pale yellow to medium orange-brown.

Zircon forms one anhedral grain 0.05 mm across in andalusite.

Biotite has pleochroism from light to medium dark reddish brown.

The vein consists mainly of very fine to fine grained plagioclase in an irregular aggregate; plagioclase is moderately altered to very fine grained sericite and lesser calcite. Locally the vein contains a patch of chlorite laths from 0.1-0.4 mm in size. Elsewhere a patch of coarser grained muscovite and quartz occurs along the vein and in a very coarse grained patch extending away from the vein. K-feldspar occurs locally with plagioclase.

WG-2 79.2 - 467' Hornblende-Biotite Granodiorite

The rock is a medium to coarse grained granodiorite with subhedral to euhedral plagioclase surrounded by anhedral quartz, K-feldspar, and myrmekite; biotite and hornblende with minor pyroxene form scattered anhedral grains averaging 0.5-1 mm in size.

| | |
|---|---|
| plagioclase | 45-50% |
| quartz | 20-25 |
| K-feldspar | 10-15 |
| biotite | 7-10 |
| myrmekite | 5- 7 |
| hornblende | 3- 5 |
| apatite | 0.5 |
| pyroxene | 1- 1½ |
| opaque | minor |
| zircon | trace |
| calcite | trace |
| epidote | minor |

Plagioclase forms subhedral to euhedral, commonly strongly zoned grains, mainly from 0.5 to 1.5 mm in size. Locally it forms patches of finer grains averaging 0.2-0.5 mm. Locally cores are altered moderately to strongly to very fine grained epidote, with scattered coarser grains of coarser epidote and muscovite-sericite.

Quartz forms grains averaging 0.5 mm in size interstitial to plagioclase. Locally it forms coarser grained, rounded patches up to 4 mm across.

Myrmekitic intergrowths averaging 0.2-0.4 mm in size occur along borders of microcline grains; they contain wormy quartz from 0.02-0.05 mm in size enclosed in plagioclase.

K-feldspar forms anhedral interstitial grains from 0.5 to 1 mm in average size. A few coarse grains contain minor exsolution plagioclase. Calcite forms irregular patches up to 0.15 mm long in K-feldspar.

Biotite forms irregular laths averaging 0.5-1 mm in size. Pleochroism is from light to medium brown. Some grains are partly altered along cleavage to chlorite. Biotite also occurs intergrown in some hornblende grains in a texture suggesting that hornblende is being replaced by biotite. Elsewhere, biotite and hornblende are intergrown coarsely with no replacement texture.

Hornblende forms anhedral grains averaging 0.5-0.8 mm in size. Pleochroism is very slight, and the color is light green. Some hornblende grains are partly altered to biotite, which commonly is intimately intergrown with hornblende. Hornblende forms similar intimate intergrowths with pyroxene, which it partly replaces.

Pyroxene forms ragged to equant grains from 0.3 to 1.2 mm in size. It is colorless, with an extinction angle of 45°. It is partly replaced by hornblende.

Apatite forms irregular grains from 0.02-0.1 mm in size, and one elongate prism 0.5 mm long, which is broken by basal fractures.

Opaque forms scattered grains averaging 0.05 mm in size; some are associated with mafic minerals, and others are in plagioclase.

Zircon forms subhedral to euhedral grains from 0.05 to 0.15 mm in size; equant grains in biotite commonly have dark halos.

WG-3 79-3 177' Pyroxene-Biotite Granodiorite

The rock is medium to coarse grained with a uniform texture.

| | |
|---|---|
| plagioclase | 40-45% |
| K-feldspar | 20-25 |
| quartz | 20-25 |
| biotite | 5- 7 |
| pyroxene | 2- 3 |
| hornblende | 1½-2 |
| calcite | 2- 3 |
| sphene | 1 |
| myrmekite | 0.5 |
| apatite | 0.2-0.5 |
| zircon | minor |

The sample is similar in many respects to WG-2.

Plagioclase forms grains averaging 0.5-1 mm in size. Many are strongly zoned, and cores are commonly altered to patches of very fine grained epidote, with minor coarser grains of epidote, calcite, and sericite-muscovite. Plagioclase grains are subhedral to euhedral in outline.

K-feldspar forms medium to very coarse grains up to 2 mm in size. Most coarser grains contain scattered inclusions of plagioclase averaging 0.2-0.3 mm in size. Minor exsolution plagioclase is present. Grains are mainly interstitial to plagioclase, and are intergrown coarsely with quartz.

Quartz forms grains from 0.5 to 1.5 mm in size interstitial to plagioclase.

Biotite forms laths averaging 0.5-0.7 mm in size, with a few up to 1.5 mm long. Some are partly altered along cleavage to chlorite with fine grained patches of Ti-oxide, and locally minor epidote. Pleochroism of biotite is from light to medium brown.

Pyroxene forms grains from 0.5 to 1.5 mm in size. Most are partly altered to either hornblende-calcite or hornblende alone; alteration is along the borders of some grains, and in pervasive patches in some of these and in others.

Hornblende occurs mainly as replacement of pyroxene. One elongate prismatic twinned grain 2 mm long may be a primary hornblende crystal; it is pervasively altered by patches of calcite averaging 0.02-0.03 mm in size.

Calcite is a secondary mineral which replaces plagioclase and mafic minerals in irregular patches up to 0.5 mm in size.

Sphene forms anhedral grains averaging 0.15 mm in size, with one coarse grain 0.5 mm across; it commonly is associated with mafic minerals, but some of the coarser grains occur in plagioclase and K-feldspar.

Myrmekite occurs as scattered grains averaging 0.2-0.3 mm in size associated with microcline.

Apatite forms anhedral grains averaging 0.1 mm in size and some finer grained (0.05 mm) subhedral to euhedral grains.

Zircon forms euhedral grains averaging 0.1 mm long in plagioclase, and anhedral grains averaging 0.05 mm across in biotite; some of the latter have thin dark halos.

WG-4 79-4 254' Banded Gneiss (Diopside-Quartz, Plagioclase)

The rock is a finely layered gneiss with irregular bands of fine to medium grained pyroxene-quartz interlayered with bands of very fine grained plagioclase-rich rock. Mineral abundances vary widely from layer to layer, and gradational contacts between layers are common.

| | | | |
|---|---|---|---|
| diopside | 40-45% | | |
| quartz | 40-45 | | |
| plagioclase | 10-15 | | |
| sphene-Ti oxide | 1-3 | | |
| pyrite | minor | epidote | minor |
| calcite | minor | | |
| amphibole? | minor | | |
| muscovite | minor | | |

Diopside forms mainly equant rounded grains from 0.05 to 0.1 mm in size, and a few coarser prismatic grains up to 0.2 mm long. Some layers contain up to 90% diopside with interstitial fine grained quartz. Most layers contain variable amounts of diopside and quartz; in layers in which quartz is more abundant, the grain size of quartz is coarser, averaging 0.5 mm, with a few grains up to 1.5 mm across. Quartz forms an irregular mosaic in quartz-rich layers, and cuspate interstitial grains in diopside-rich layers. Sphene or Ti-oxide form very fine grained aggregates of grains 0.01-0.02 mm in size, with patches up to 0.2 mm across in diopside-quartz layers.

Plagioclase-rich layers and lenses consist of intergrowths of angular plagioclase grains averaging 0.02-0.05 mm in size. Intergrown with plagioclase are scattered muscovite laths up to 0.1 mm long, and epidote patches up to 0.05 mm across. Locally quartz is intergrown with plagioclase. Ti-oxide? forms abundant very fine grained patches and intergrowths with plagioclase. Some of this mineral may be epidote, but most appears to have too high relief and birefringence for epidote.

Calcite forms scattered irregular grains averaging 0.1 mm in size.

Pyrite forms a few cubes 0.02 mm across, and irregular grains up to 0.3 mm across; many of the latter have rims or partial rims of epidote.

Amphibole? forms a few scattered grains from 0.2 to 0.4 mm in size. Grains have light green color and very irregular outlines. The coarsest grain occurs with quartz and calcite, while a finer grain occurs with quartz and diopside.

WG-5 79-5 200' Altered Diopside-Plagioclase Gneiss

The sample is similar to WG-4, but is moderately to strongly altered and veined.

| | | |
|---|---|---|
| diopside | 45-50% | (moderately to completely altered to biotite? |
| plagioclase | 35-40 | or limonite) |
| quartz | 5- 7 | |
| calcite | 2- 3 | |

veins:
1) plagioclase-epidote
2) calcite

Diopside forms layers composed of aggregates of equant grains averaging 0.05-0.1 mm in size, with minor interstitial quartz and locally calcite. Other layers contain coarser diopside up to 0.5 mm in size with more abundant plagioclase and quartz averaging 0.1-0.3 mm in size. Much of the diopside is completely altered to pseudomorphs of very fine grained biotite? with a medium orange-brown color. Elsewhere, diopside is partly altered along fractures and grain borders to the same brown mineral, here apparently limonite?

Plagioclase-rich layers consist of very fine grained aggregates averaging 0.03-0.08 mm in size, with lesser quartz of similar size. Some layers of plagioclase are strongly to completely altered to very fine grained epidote with local patches of fine to medium grained epidote. Some layers parallel to epidote-rich layers consist of intimate intergrowths of very fine to fine grained calcite and quartz; the parent of these layers is unknown.

The rock is cut by two coarse grained plagioclase lenses up to ten mm long and two mm wide. Plagioclase grains are altered in part to fine grained epidote, and a few coarser patches of epidote are present.

Later the rock was cut by very abundant calcite veins in several orientations. Grain size is fine to coarse, and many coarse grains are strongly twinnned. Possibly all the calcite in the rock was introduced during formation of the veins.

WG-6 79-5 287.5' Brecciated Quartz Vein or Quartzite

| pre-breccia minerals | |
|---|---|
| quartz | 65-70% |
| sericite | 3- 5 |
| tourmaline | minor |
| opaque | minor |
| epidote | trace |
| zircon | trace |

| breccia matrix and vein minerals | |
|---|---|
| kaolinite | 10-15% |
| calcite | 7-10 |
| sericite | 2- 3 |
| opaque,semiopaque | 1 |

Quartz forms an anhedral mosaic with variable grain size; some patches average 0.05-0.25 and others are up to 1.5 mm in grain size. Fragments of quartz show a slight preferred orientation. Sericite forms scattered grains and clusters within quartz aggregates; some are probably pre-brecciation in origin, while tohers are part of the breccia groundmass. Tourmaline forms a few grains from 0.05 to 0.1 mm in average size. They are anhedral and subrounded, and probably are of detrital origin, suggesting that the rock is a metamorphic quartzite rather than a quartz vein. Zircon forms a few anhedral grains averaging 0.03-0.05 mm in size. Opaque forms a few subhedral angular grains up to 0.25 mm across. Epidote forms abundant subhedral grains 0.02-0.05 mm in size enclosed in one quartz grain 0.2 mm across.

The rock has been strongly brecciated and veined, with angular fragments of quartz grains from 0.03-0.3 mm in size enclosed in a matrix of kaolinite and lesser calcite and sericite. Kaolinite forms patches of variable grain size from 0.002 to 0.02 mm in size. Scattered through kaolinite is abundant dusty to very fine grained opaque and semiopaque. Calcite forms irregular patches and veinlets in the groundmass; grain size increases with the size of the patch, with the coarsest being up to 1 mm across.

The relative ages of kaolinite and calcite are unknown as no obvious cross-cutting relations exist. The two minerals occupy separate parts of the matrix, suggesting a difference in age. Sericite in the matrix commonly is associated with calcite in irregular seams and veinlets.

WG-7 79-5 366.5' Brecciated Feldspar-Quartz Gneiss

The rock is a very finely banded gneiss, with quartz-rich layers up to 1 mm thick,and feldspar-rich layers averaging 0.05 mm thick. The rock is strongly brecciated, with fragments enclosed in calcite-limonite? groundmass.

| | | | |
|---|---|---|---|
| quartz | 70-75% | | |
| K-feldspar | 5- 7 | | |
| plagioclase | 3- 5 | | |
| calcite | 2- 3 | opaque | 2-3% |
| diopside | 1½-2 | | |
| chlorite | 1- 1½ | | |
| apatite | minor | | |
| epidote | 1- 1½ | | |
| muscovite | trace | | |

veins: calcite-limonite?

Quartz averages 0.05-0.1 mm in size in thinner layers, and up to 0.5 mm in thicker layers. Quartz-rich layers contain scattered calcite, opaque, diopside, and chlorite.

Feldspar-rich layers contain feldspars averaging 0.02-0.05 mm in size, with locally abundant very fine grained epidote and dusty opaque. Apatite forms scattered anhedral grains from 0.02-0.05 mm in size in some feldspar-rich layers.

Diopside forms scattered anhedral, corroded grains averaging 0.15-0.2 mm across, with a few up to 0.7 mm.

Chlorite forms equant grains averaging 0.05-0.1 mm in size. They have a pleochroism from colorless to pinkish brown. Coarser grained chlorite occurs with coarser opaque grains.

Opaque forms grains averaging 0.03-0.08 mm in size, with a few grains up to 0.3 mm across.

Muscovite forms a few grains up to 0.1 mm long along a calcite-limonite vein.

The rock is strongly brecciated with breccia matrix and abundant veins composed of calcite and limonite? Calcite is very strongly twinnned, and forms grains up to 1.5 mm across. Limonite is extremely fine grained, and locally shows colloform textures. In hand sample this mineral has properties similar to stilpnomelane, but the colloform textures in thin section favor limonite. This mineral appears to be the same one as that which alters diopside in sample WG-5.

WG-8 79-7 96.5' Banded Hornfelsed Gneiss

The sample contains alternating bands of felsic and mafic composition, which range in thickness from 0.2 mm to 5 mm, averaging 1-2 mm. At one end of the sample mafic layers are thicker and at the other end felsic layers predominate. Mineral abundances range widely within and between layers, and gradations between felsic and mafic layers are common.

felsic layers

| | |
|---|---|
| quartz | 30-80% |
| microcline | 15-40 |
| plagioclase | 5-40 |
| chlorite | 2- 5 |
| biotite | minor |
| epidote | trace |
| opaque | minor |
| muscovite | 0- 5 |

Most layers consist of rounded to irregular grains of quartz from 0.05 to 0.2 mm in average size, with interstitial microcline grains from 0.05 to 0.5 mm across. Plagioclase generally is not abundant, forming scattered grains from 0.2-0.3 mm in size. A few layers contain abundant plagioclase; in these feldspars and quartz are intergrown in irregular mosaic aggregates averaging 0.05-0.1 mm.

Chlorite forms scattered laths and clusters of laths averaging 0.15 mm in size and ranging up to 0.5 mm long. Epidote and minor opaque occur with chlorite. Biotite forms scattered grains averaging 0.1 mm in size. Opaque forms irregular patches to subhedral grains averaging 0.05 mm across; some of these appear to be pyrite. Muscovite is abundant in some layers as irregular flakes 0.2-0.3 mm in average size.

mafic layers

| | |
|---|---|
| biotite | 25-40% |
| muscovite | 20-35 |
| andalusite | 0-25 |
| plagioclase + quartz | 10-30 |
| opaque | 1- 2 |
| zircon | trace |
| apatite | trace |
| tourmaline | trace |

Biotite forms subhedral to anhedral laths and flakes averaging 0.2 mm in size. Andalusite forms grains up to 2 mm long concentrated in some layers; they are moderately to strongly altered to ragged muscovite aggregates averaging 0.15-0.5 mm in grain size. Plagioclase and minor quartz form patches of grains from 0.1-0.15 mm in grain size intergrown with biotite and muscovite. Opaque forms patches up to 0.2 mm across and a few vein-like zones parallel to foliation. Zircon forms one euhedral prism 0.08 mm long and a few ragged cross sections up to 0.08 mm across. Apatite forms a few subhedral grains up to 0.08 mm across in some layers. Tourmaline forms one stubby subhedral prism 0.05 mm long; pleochroism is from pale to light green.

WG-9 79-10 204.5 Contorted Banded Gneiss and Quartz Monzonite layers of probable Metamorphic origin

The rock is strongly contorted, with gneissic bands of mafic and felsic composition finely interlayered. Some layers? consist of coarser grained rock of quartz monzonite composition, probably formed by partial melting of the rock. The composition of layers varies widely and gradations between mafic and felsic layers are common.

mafic layers

| | | |
|---|---|---|
| biotite | 30-40% | |
| muscovite | 20-30 | |
| plagioclase | 10-30 | |
| andalusite | 0-15 | |
| quartz | 0-10 | |
| K-feldspar | 0- 5 | |
| opaque | 1- 3 | (partly pyrite) |
| zircon | trace | |
| apatite | trace | |

Biotite forms anhedral grains to subhedral laths averaging 0.05 to 0.2 mm in size, with a few up to 0.5 mm; pleochroism is from light straw to medium red-brown. Muscovite forms very irregular aggregates of fine grains intergrown in patches with biotite; average grain size of muscovite is 0.02-0.1 mm. In some layers andalusite forms rounded to mainly skeletal grains up to 0.5 mm across, generally partly (mediumly to strongly) altered to muscovite. Some of these contain very fine grained opaque (0.02-0.05 mm) in anhedral disseminations. Feldspars and quartz occur in patches and interstitial grains among the micas; grain size ranges widely from 0.05 to 0.3 mm. Opaque occurs with biotite in patches of grains averaging 0.2-0.5 mm across, with a few up to 1 mm. Some opaque shows subhedral cubic outlines, and probably is pyrite. Zircon forms anhedral grains averaging 0.002-0.03 mm in biotite and one euhedral prism 0.08 mm long in plagioclase. Apatite forms a few euhedral cross sections about 0.03 mm across.

felsic layers

| | |
|---|---|
| quartz | 35-60% |
| K-feldspar | 30-45 |
| plagioclase | 5-10 |
| biotite | 3- 5 |

Felsic layers are gradational along their borders with mafic layers. Quartz forms distinctive rounded grains averaging 0.05-0.2 mm across. Microcline, commonly with exsolved plagioclase forms anhedral interstitial grains. Plagioclase forms equant grains averaging 0.2-0.3 mm in size; they are slightly altered to sericite. Biotite forms scattered grains averaging 0.05 mm in size.

(continued on next page)

WG-9 (continued)

quartz monzonite layers

| | |
|---|---|
| quartz | 35-50% |
| perthite | 35-50% |
| chlorite | 3- 5 |
| muscovite | 3- 5 |
| tourmaline | minor |
| pyrite | minor |

These layers are medium to coarse grained, with perthite grains up to 1.5 mm in size. Quartz forms rounded grains averaging 0.5-1 mm across. Perthite consists of microcline grains with abundant exsolved plagioclase concentrated near the borders of the grains. Perthite is mainly interstitial to quartz. Chlorite forms laths up to 0.8 mm long associated with minor tourmaline, epidote, and opaque. Tourmaline also forms a few grains up to 0.12 mm across. Pyrite forms subhedral grains up to 0.15 mm across. Muscovite forms scattered patches of grains with irregular to skeletal outlines.

WG-10 79-10 228.5' Contact Zone: Quartz Monzonite with fragments of Hornfelsed Country Rock

The rock contains elongate fragments of foliated country rock and irregular fragments of massive country rock, both of which contain andalusite.

1) Quartz Monzonite

| | | |
|---|---|---|
| K-feldspar | 40-45% | (in part microcline twinning) |
| quartz | 30-35 | |
| plagioclase | 20-25 | |
| biotite | 3- 5 | (some altered to chlorite) |
| opaque | 0.5 | |
| zircon | trace | |

The intrusive rock is medium to coarse grained, averaging 0.5 to 1 mm in grain size. Plagioclase forms subhedral grains which commonly show concentric zoning with more-calcic cores and more-sodic rims. They are altered in their cores moderately to very fine grained sericite or coarser irregular muscovite. Quartz and microcline are interstitial to plagioclase. Many coarse microcline grains contain exsolution plagioclase. Minor myrmekite is present.

Biotite forms laths up to 1 mm long. Some are partly to completely altered along cleavage to chlorite and minor epidote. Opaque forms patches up to 1 mm across of very fine grained aggregates. Zircon forms anhedral grains up to 0.05 mm across, mainly in biotite.

2) Hornfelsed Country Rock

| | |
|---|---|
| biotite | 35-45 |
| plagioclase | 35-45 |
| andalusite | 5- 7 |
| muscovite | 5- 7 |
| quartz | 2- 3 |
| K-feldspar | 1 |
| zircon | minor |

Some fragments have a strong foliation and others are massive; otherwise mineralogies are similar except for slightly higher mica content in the foliated fragments. Biotite grains average 0.05-0.3 mm in size and have strong pleochroism from pale to medium reddish brown. Plagioclase forms equant to slightly elongate grains averaging 0.1-0.2 mm in size; alteration is minor to very fine grained sericite. Andalusite forms irregular grains up to 1.2 mm in size; they are altered along their borders to irregular aggregates of muscovite. Some andalusite contains abundant opaque inclusions averaging 0.02 mm in size. Quartz forms scattered anhedral grains averaging 0.05-0.1 mm in size.

WG-11 79-14 207.5' Hornfels (parent unknown)

| | |
|---|---|
| muscovite | 30-35% |
| andalusite | 20-25 |
| biotite | 15-20 |
| K-feldspar | 10-15 |
| opaque | 3- 5 |
| plagioclase | 3- 5 |
| quartz | 0.5 |
| epidote | 0.5 |
| Ti-oxide | minor |
| calcite | trace |
| zircon | trace |

Andalusite forms elongate ragged prismatic grains up to a few mm long. They are fractured and altered along their borders to muscovite, which also forms irregular patches surrounding andalusite. Andalusite has the following properties: moderate to high relief, low birefringence (0.010), length-fast, optically negative with high 2V, commonly parallel extinction. It is strongly fluorescent under short wave-length ultraviolet light, with a greenish-white fluorescence.

Muscovite aggregates range from subhedral laths to very irregular interlocking grains averaging 0.2-0.5 mm in size.

Biotite forms interstitial patches between muscovite-andalusite patches. Clusters of randomly oriented biotite grains average 0.2-0.5 mm in size; pleochroism is from light to medium reddish brown. Interstitial to biotite are aggregates of microcline and lesser plagioclase with minor quartz. Most plagioclase and quartz grains average 0.05-0.1 mm in size. Microcline is either intergrown with plagioclase and quartz as grains 0.1-0.15 mm in size, or interstitial to biotite with grain size up to 0.7 mm. The latter grains contain abundant fine inclusions of biotite.

Opaque forms rounded to irregular grains and aggregates commonly associated with biotite. The size of opaque patches ranges up to 1 mm.

Epidote forms a few clusters of very fine grains averaging 0.05 mm in size; these are intergrown with muscovite.

Ti-oxide forms scattered grains and clusters of a few grains averaging 0.02-0.1 mm in grain size. These occur throughout the rock.

Calcite forms a few very fine (0.02-0.05 mm) anhedral grains with muscovite.

Zircon forms numerous tiny grains (up to 0.03 mm) included in biotite; they generally have thin dark halos.

WG-12
FLOAT SAMPLE Layered Quartz-Feldspar Gneiss with Pyrrhotite

The sample contains layers of several compositions, which probably represent original sedimentary layers. The following types are present:

1) quartz-pyrrhotite-diopside-(plagioclase-epidote)
2) plagioclase (altered to epidote-actinolite)
3) quartz-pyrrhotite-epidote-(actinolite)
4) quartz-plagioclase-(pyrrhotite-epidote-actinolite)

| | |
|---|---|
| plagioclase | 30-35% |
| quartz | 25-30 |
| actinolite | 7-10 |
| diopside | 5- 7 |
| epidote | 5- 7 |
| calcite | minor |
| sphene | minor |
| Ti-oxide | trace |
| pyrrhotite | 15-20 |
| chalcopyrite | minor |
| apatite | trace |

Plagioclase forms very fine grained, partly oriented aggregates of slightly elongated feathery grains averaging 0.03-0.05 mm in length. Plagioclase-rich layers are altered in patches to fine to medium grained epidote and coarse porphyroblasts of actinolite. Actinolite is colorless, and is concentrated along the borders of some plagioclase-rich layers; many porphyroblasts are elongate prismatic crystals up to 2 mm in size.

In plagioclase-quartz layers, plagioclase forms coarser, anhedral grains up to 0.5 mm across.

Quartz generally forms anhedral mosaic aggregates from 0.05 to 0.5 mm in grain size. In quartz-pyrrhotite layers, quartz commonly forms rounded grains surrounded by anhedral interstitial pyrrhotite.

Diopside occurs only in quartz-pyrrhotite layers as anhedral equant grains averaging 0.05-0.3 mm.

Epidote occurs as fine to medium grained patches in plagioclase-rich layers, and also occurs in one layer with quartz and pyrrhotite.

Calcite forms scattered grains from 0.05 to 0.25 mm in size.

Sphene forms a few anhedral grains up to 0.2 mm long in plagioclase-rich layers.

Ti-oxide forms very fine grains and aggregates in plagioclase-rich layers.

Pyrrhotite forms interstitial patches to quartz, with average size up to 0.8 mm. Most grains are slightly altered along fractures and grain borders to secondary iron minerals (pyrite-hematite-carbonate?). In the layer at one end of the sample, alteration is more intense, and locally hematite forms veinlets at the end of the sample.

Chalcopyrite forms a few grains from 0.03-0.05 mm in size intergrown with quartz-pyrrhotite, and about the same number of grains from 0.02-0.04 mm in quartz away from pyrrhotite.

Apatite forms a few grains averaging 0.05 mm in size in plagioclase-quartz layers.

An epidote veinlet occurs in the quartz-pyrrhotite-plagioclase layer at one end of the sample.

# APPENDIX 11

## Statement of Costs - Ungrouped Claims

Claim list
Location maps
Statements of costs
Invoices
Statements of Qualification

Statement of Costs: Alec 21-24, 35-42, 51, 53-60
Bob 2-73, D.G. 1-47, 49, 51-56
Ungrouped Claims Jeff 49-52, 54, 67-80, 83-96, 99-112
Smoky 1, 62, 64, 66, 68-73, 75, 80-82

Personnel (field work) Summer 1979
L.J. D'Aigle - overall supervision of total programme
Vancouver, BC Salary of $2500/month split between
Tungsten mine area, Keno Project and
Dublin Gulch for June, July, August and September $3300.00

B. Lennan - Project Supervisor
1208-2008 Fullerton Ave
North Vancouver, BC

All dates 1979

May 15-31 - 17 days @ $105/day 1785.00

Crew assembly and getting crew familiar with maps and geology. Set up crew duties. Acquire remaining camp materials and truck rentals.

June 2-7 - 6 days @ $105/day 630.00

Familiarize first line cutting crew with new grid area. Construct camp, dry and modify kitchen for larger crew.

July 16-21 - 6 days @ $105/day 630.00

Familiarize second line cutting crew with new grid running northwest into Dublin Gulch. Set up first drill sites and have cleared with D-7 cat. Meet drill crew in Mayo and direct crew and equipment to Dublin Gulch.

August 15-31 - 17 days @ $105/day 1785.00

August 15-24 - Spotting drill holes 79-8, 9, 10 and 11. Have drill sites cleared and collars spotted. Log drill core for holes 79-8, 9, 10 and 11. August 25-31 - Ordering and expediting drilling supplies(mud, cement and parts). Direct sampling of old adits on Bob, D.G. and Smoky claims. Organize geologic mapping of new grid that run N.W. from the ridge south of Dublin Gulch. The grid covers Bob, Smoky and D.G. claims.

September 1-6 - 6 days @ $105/day $ 630.00

Mapping on new grid, day to day organization of diamond drill hole locations and expediting geological, geochemical and geophysical surveys on the Bob, Smoky, D.G. and Jeff claims. Ordering and picking up drill supplies, camp food supplies etc to keep a smooth flow of operations.

November 1-30 - Monthly salary 2100.00

Report preparation - working with Wilson Gewargis. Establish new geologic legend, prepare rough map drafts for Altair Drafting. Receive final geochemistry and drill assay results from Chemex. Assemble data and start sorting and listing geochemical results. Work out map drawing problems with Altair.

December 1-31 - Monthly salary 2100.00

Report preparation - working with Wilson Gewargis. Purchase planimeter to aid in ore reserve calculations. Compile expense to put together Statement of Costs for grouped and ungrouped claims.

January 2-

Writing report, finalize studies and check rough draft. Compile final draft.

Wilson Gewargis - Project Geologist
4811 Dunfell Rd
Richmond, BC

All dates 1979

May 1-18 - 18 days @ $80/day 1440.00

Familiarization with Dublin Gulch. Reading 1978 project report. Preparing maps and planning various stages of work and surveys to be carried out during the 1979 field season.

May 22-31 - 10 days @ $80/day $ 800.00

Pick up rental trucks. Mobilize camp gear and take to Dublin Gulch.

June 1 - Mapping on Tin Dome, D.G. Claims @ $80/day 80.00

June 2-26 - 25 days @ $80/day 2000.00

Geologic mapping - Ray Gulch Grid, Mar, Jeff and Alec claims. Checking 1978 mapping to check geologic and structural problem found in that year. Detailed sampling (channel) of skarn zones. This area worked on extends from Line 37+000E to Line 40+640E.

June 27-30 - 4 days @ $80/day 320.00

Mark drill site locations for cat operator to clear. Mark out trenches for cat operator to clear out. Map trenches.

July 1-7 - 7 days @ $80/day 560.00

Geologic mapping and channel sampling on Lines 39+850E and 39+700E. Mapping and sampling trenches. Two days office work plotting data and preparing samples.

July 9-12 - 4 days @ $80/day 320.00

Geologic mapping in detail on skarn zone along Line 39+850E. Reconnaissance geologic mapping on Jeff claims northeast of Potato Hills.

July 13-24 - 12 days @ $80/day 960.00

Geologic mapping around Garnet Skarn zone prior to diamond drilling in vicinity of Lines 38+500E. Office work - 2 days, preparing rough geologic section in overburden covered areas to be drilled. One day on North Ridge on D.G. and Bob claims. Four days assisting drill crew in moving equipment up from base camp to first drill site.

August 1-September 20 - 56 days @ $80/day = $4480.00

90% of this time was spent supervising the diamond drilling programme on claim groups A to L. This is reported in the Statement of Costs for each claim group. 10% of this time was allocated to project supervision for the surveys conducted off the claim groups. 10% of $4480 448.00

September 21-24 - 4 days @ $80/day $ 320.00

Camp demobilization. Clean up area around camp. Store materials away ready for use in 1980.

September 25-30 - 5 days @ $80/day 400.00

Transport valuable equipment and rental trucks back to Vancouver.

October 1-10 - 10 days @ $80/day 800.00

Preparing claim data and checking costs for claim groupings. Copying and colouring maps to go with C and E Forms. Compiled all forms and had notarized before mailing.

October 15-31 - 17 days @ $80/day 1360.00

Assembled all field maps, field notes, specimen rock samples to start preparation of assessment report. Prepared rock samples and drill core specimens for thin section analysis. Sent to Vancouver Petrographics. Consult with petrographer on specific problems relating to metamorphism and structure in the Dublin area. Set up new geologic legend utilizing symbols, numbers and/or colours. Supervised rough map preparation and small reports being prepared by D. Coffin and W. Howard. The areas covered by these small reports are Gill Gulch (Smoky claims), Tin Dome (D.G. claims) and the Gold fissure zone (Smoky, Bob and D.G. claims) discussed in 1978 and studied in detail in 1979.

November 1-30 - 21 working days @ $80/day 1680.00

Started rough pencil draft of diamond drill section maps, geology maps, geochemistry maps etc. As maps completed passed on to Altair Drafting. Altair very slow due to many companies seeking their services and shortage of draftsmen. Went over maps completed by Altair to check for mistakes. Several were sent back for corrections. Another set of rock and drill core specimens were sent out for petrographic analysis.

December 1-31 - 15 working days @ $80/day 1200.00

January 2- April 10, 1980 3.5 months at $2100/month $7350.00

Finished off rough drafts of section maps, geology maps etc and sent to Altair for final drafting. Checked for mistakes on Altairs final product and had them correct any errors. Drafting was again very slow! Report writing commenced as the most important maps were returned. Rough draft typed and checked and sent for final typing.

Bill Howard - Geologist
3505 West 37th Ave
Vancouver, BC

All dates 1979

May 7-18 - 10 working days @ $60/day $ 600.00

Property familiarization, research reading, map compilations and preparation for summer field work.

May 22-31 - 10 working days @ $60/day 600.00

Pick up rental truck, assemble camp supplies, drive to Watson Lake and pick up remaining camp supplies. Travel to camp and assist with setting up operations.

June 1-11 - 11 days @ $60/day 660.00

Detailed geologic mapping and sampling on Tin Dome at 1:1000 and 1:100 along old trenches and over the total area. This was on the D.G. claims.

June 12-30 - 19 days @ $60/day 1140.00

Detailed geologic mapping 1:1000 in Ray Gulch area from lines 39+700 west to line 38+050E south of the base line. More detailed outcrop and boulder mapping job was required in this area where 1:5000 mapping was done in 1978. This was to facilitate better locations for drill holes.

July 1-23 - 23 days @ $60/day $1380.00

Detailed geologic mapping in Line 38+500E to Line 38+050E area south of baseline. Nine days spent plotting data and making rough sections for proposed drill holes. Dave and Smoky claims.

July 24-31 - 8 days @ $60/day 480.00

Detailed geologic mapping (1:1000) on new grid established south of baseline. Line 37+900E to Line 37+600E. Channel samples taken across skarn sections found on cliffs. Float rocks mapped on flat ridge top. Dave and Smoky claims.

August 1-3 - 3 days @ $60/day 180.00

Continued mapping on new grid along line 37+450E and line 37+300E south of baseline. Dave and Smoky claims. Mapped at scale of 1:1000.

August 4-7 - 4 days @ $60/day 240.00

Geologic mapping, soil sampling and rock sampling at 1:5000 in the vicinity of Gill Gulch. This is on the Smoky claims.

August 8-15 - 8 days @ $60/day 480.00

Geologic mapping 1:1000 on new grid south of baseline on line 37+150E. Directing cat on cutting trenches 7, 8, 9. Map trenches at 1:100. Map float rock to the east of drill holes to check possibilities for new drill sites. Dave and Smoky claims.

August 16-25 - 10 days @ $60/day 600.00

Geologic mapping 1:1000 on new grid south of baseline line 37+000E, line 36+850E, line 36+700E. Completed geologic mapping of trench 79-9. Dave and Smoky claims.

August 25-28 - 3 days @ $60/day 180.00

Geologic mapping, soil sampling and silt sampling in Gill Gulch area at 1:5000. Smoky claims.

| | |
|---|---|
| September 4-6 - 3 days @ $60/day | $ 180.00 |
| Geologic mapping, silt sampling, soil sampling and prospecting in Gill Gulch. | |
| September 7-10 - 4 days @ $60/day | 240.00 |
| Geologic mapping at 1:5000 in Lynx Dome area. Jeff claims. | |
| September 11, 12 - 2 days @ $60/day | 120.00 |
| Geologic mapping (boulder mapping) 1:1000 on grid area near Potato Hills to try and locate buried extensions of the 39+400 and 39+800 skarn zones. Jeff and Mar claims. | |
| September 14-18 - 5 days @ $60/day | 300.00 |
| Sample preparation, shipping samples and plotting rough data from new grid south of baseline, Gill Gulch and Lynx Dome. | |
| September 19-24 - 6 days @ $60/day | 360.00 |
| Clearing space in old camp buildings to store camp materials. Start demobilization of camp by packing non-essential items away and recording inventory. | |
| September 25-30 - 6 days @ $60/day | 360.00 |
| Pack equipment into rental trucks and leave for warehouses in Watson Lake and return vehicles to Vancouver. | |
| October 1-26 - 19 working days @ $60/day | 1140.00 |
| Compile data on Gill Gulch, Tin Dome, Lynx Dome, Trenches and new grid south of baseline. Drafted up rough geologic and geochemical maps of above areas and submitted to Altair for final draft. Reports written on Gill Gulch and Tin Dome. | |

Jaques Chasse - Geologist
208-1821 Barclay St.
Vancouver, BC

All dates 1979

May 11-18 - 5 working days @ $60/day $ 300.00

Read over 1978 report and maps to become familiar with Dublin Gulch Property. Assisted B. Howard and W. Gewargis in preparing sets of base maps for 1980 field work.

May 22-28 - 7 days @ $60/day 420.00

Take rental trucks to Dublin Gulch. Pick up camp equipment in Watson Lake and take to Dublin. Assist in slinging equipment in to camp as road flooded.

May 29-31 - 3 days @ $60/day 180.00

Set up camp.

June 1-11 - 11 days @ $60/day 660.00

Geologic mapping 1:5000 scale on North Ridge. Fill in areas not mapped in 1978. Work done in vicinity of Line 36+700E, Line 12+200N, Line 37+000E and Line 12+200N, D.G. and Bob claims.

Cyrill Orssich - Geologist
C/- 5780 - 203rd St
Langley, BC

All dates 1979

July 17 - August 3 - 18 days @ $60/day 1080.00

Detailed 1:5000 geologic mapping on North Ridge. Continued project started by J. Chasse to fill in mapping between the North Base Line 12+200N and the termination of the Dublin Gulch Grid Line cut in 1978. This area was at the end of Line 36+800E, 37+000E, 37+150E and Line 37+300E. One day spent plotting data. D.G., Bob and Jeff claims.

Stan Bartlett - Geologist
2270 Wesbrook Crescent
Vancouver, BC

All dates 1979

August 4-9 - 6 days @ $65/day $ 390.00

Detailed geologic mapping at 1:5000, reconnaissance type mapping east of Potato Hills on the Jeff claims. No grid lines, just measuring off baseline.

August 11-14 - 4 days @ $65/day 260.00

Detailed geologic mapping at 1:5000 on the new grid extension into Dublin Gulch. The grid is located on the Smoky claims. Line mapped on Line 36+100E, Line 36+200E, Line 35+650E, L 35+950E, Line 35+950E, Line 35+500E, Line 35+800E.

August 16-17 - 2 days @ $65/day 130.00

Detailed mapping on lines shown above.

August 21-27 - 7 days @ $65/day 455.00

Detailed geologic mapping (underground) on old adits (now called Aurum and Beaver). Adits located on Bob, D.G. and Smoky claims. Adits and surrounding trenches mapped at 1:100 scale.

August 28-31 - 4 days @ $65/day 260.00

Trench mapping on Line 37+450E. Geologic mapping on Line 35+200E and Line 35+350E of new grid extension. Smoky claims.

September 1-12 - 12 days @ $65/day 780.00

Detailed geologic mapping at 1:5000 back in area east of Potato Hills. Six days spent in Lynx Dome area mapping with B. Howard. Jeff claims.

David Coffin - Senior Geological Assistant
201-1972 Robson Street
Vancouver, BC

All dates 1979

May 11-31 - 21 days @ $61/day — $1281.00

In Watson Lake, assembled camp equipment, core boxes and transportation to mobilize materials to Dublin Gulch. Arranged for broken equipment to be repaired.

June 1-30 - 30 days @ $61/day — 1830.00

26 days spent building camp and repairing water system to camp. Got water supply working in kitchen. Built camp dry complete with showers and sink. Difficulties getting appropriate parts for plumbing. Travelling between camp and Mayo to bring in lumber and other building supplies. Four days spent geologic mapping at 1:5000 in North Ridge and Potato Hills area. Bob and Jeff claims.

July 1-7 - 7 days @ $61/day — 427.00

Geologic mapping at 1:5000 on new grid located south of baseline. Line 36+700E, Line 36+850E and Line 37+000E.

July 11-14 - 4 days @ $61/day — 244.00

Geologic mapping on new grid south of baseline and on grid around the Garnet Skarn Zone. Mapping at 1:5000. Dave, R.D. and Smoky claims.

July 17-25 - 9 days @ $61/day — 549.00

Camp equipment repair, vehicle maintenance, data plotting and expediting for the camp and diamond drilling operation. This entailed ordering and picking up drilling cement, core boxes, propane, groceries, lumber for core racks and sample shipping.

July 26-28 - 3 days @ $61/day — 183.00

Geologic mapping 1:5000 scale on new grid south of baseline. Line 37+150E, Line 37+300E. Dave and Smoky claims.

August 24-26 - 3 days @ $61/day $ 183.00

Underground mapping and sampling in old gold adits. Working with Stan Bartlett. Mapping at 1:100. Sampling at 1 metre intervals. Bob, D.G. and Smoky claims.

September 1 - 1 day @ $61/day 61.00

Soil sampled new Dublin Gulch grid extension on Line 35+200E. Smoky claims.

September 2-7 - 6 days @ $61/day 366.00

3½ days spent building new core racks to facilitate core storage for extra drilling. 2½ days mapping in vicinity of Lynx Dome at 1:5000. Jeff and Mar claims.

September 8-9 - 2 days @ $61/day 122.00

Assisting Stan Bartlett in geologic mapping and sampling underground adits. Beaver adit. Bob, Smoky and D.G. claims.

September 17-20 - 4 days @ $61/day 244.00

Underground mapping and sampling on Beaver and Aurum adits. Trench mapping in adit area on Line 37+150E Stn 11+400N.

September 21-23 - 3 days @ $61/day 183.00

Camp tear down and equipment storage.

Don Storie - Junior Field Assistant
Armstrong, BC

All dates 1979

May 11-31 - 21 days @ $46/day 966.00

In Watson Lake with D. Coffin until May 17. Assembled camp gear, core boxes and other equipment to be trucked to Mayo, as road to camp washed out. Assisted in slinging gear into camp via T.N.T.A. helicopter from May 29-31.

| | |
|---|---|
| June 1-4 - 4 days @ $46/day | $ 184.00 |
| Constructing camp. | |
| June 9-13 - 5 days @ $46/day | 230.00 |
| Flag in new grid lines on Tin Dome. Run in lines from North base line 12+200N. Soil sampled North Base Line 12+200N extension and Line 36+550E on Tin Dome. D.G. claims. | |
| June 14-16 - 3 days @ $46/day | 138.00 |
| Working on camp construction. Working with D. Coffin and G. Sopher on construction of dry facilities. | |
| June 17-21 - 5 days @ $46/day | 230.00 |
| Soil sampling on new grid lines on Tin Dome. D.G. claims. | |
| June 22-23 - 2 days @ $46/day | 92.00 |
| Camp construction. | |
| June 24-27 - 4 days @ $46/day | 184.00 |
| Soil sampled grid lines on Tin Dome. D.G. claims. | |
| June 28-30 - 3 days @ $46/day | 138.00 |
| Soil sampled new grid south of the base line 10+000N. Sampled line 36+700E, line 38+050E, line 37+900E and line 37+750E. Dave and Smoky claims. | |
| July 1-10 - 10 days @ $46/day | 460.00 |
| Soil sampled new grid lines south of baseline, line 37+450E, line 37+300E, line 37+600E, line 36+850E, line 37+000E. Close sample spacing = 50 metres. Dave and Smoky claims. | |
| July 11-13 - 3 days @ $46/day | 138.00 |
| Constructed first set of core racks and core logging shack on D.D.H. #2 site. | |

| | |
|---|---|
| July 15 - 1 day @ $46/day | $ 46.00 |
| Complete sampling line 36+800E up to station 13+550N on Tin Dome grid. D.G. claims. | |
| August 18-20 - 3 days @ $46/day | 138.00 |
| Soil sampled lines on new Dublin Gulch grid extension north of baseline 10+000N, line 36+400E, line 36+100E. | |
| August 24-26 - 3 days @ $46/day | 138.00 |
| Rock chip sampling and trench sampling in and around Beaver and Aurum adits working with D. Coffin and Stan Bartlett. Bob, D.G. and Smoky claims. | |
| August 28-30 - 3 days @ $46/day | 138.00 |
| Soil sampled new Dublin Gulch grid line 35+500E, line 35+350E, line 35+650E. | |
| September 8-9 - 2 days @ $46/day | 92.00 |
| Sampled trenches near Beaver and Aurum adits. | |
| September 10 - 1 day @ $46/day | 46.00 |
| Soil sampled uncompleted sections of line 39+400E, 39+250E and 39+100E. Dave, Mar and Alec claims. | |
| September 16-20 - 5 days @ $46/day | 230.00 |
| 2 days spent plotting rough data. 3 days sampling underground on Beaver and Aurum adits. Bob, D.G. and Smoky claims. | |
| September 24 - 1 day @ $46/day | 46.00 |
| Camp demobilization. | |

Margaret Dyke - Cook
11460 - 95th Street
Edmonton, Alberta

All dates 1979

June 2-30 - 29 days @ $60/day $1740.00

Cook for crew 16-20, expedite grocery and supply orders.

July 1-31 - 31 days @ $60/day 1740.00

As above.

August 1-22 - 22 days @ $60/day 1320.00

As above.

August 26-31 - 6 days @ $60/day 360.00

As above.

September 1-24 - 24 days @ $60/day 1440.00

As above.

Elenor Haner - Cook
Barriere, BC

All dates 1979

July 9 - August 26 - 49 days @ $60/day 2940.00

Working with Margaret Dyke cooking for 16-20 men, occasionally larger. Expedite grocery and supply orders.

Gary Sopher - Junior Field Assistant
U.B.C.
Totem Park

All dates 1979

May 15-31 - 17 days @ $46/day $ 782.00

Met D. Coffin and D. Storie in Mayo, flew to Dublin Gulch and cleared snow off tent floors and prepared areas so that equipment and camp supplies could be landed at and stored dry. Due to flooding on road to Dublin Gulch, materials were slung in under a helicopter. Assisted in sorting and preparing sling nets when camp equipment moved.

June 1-2 - 2 days @ $46/day 92.00

Assisting J. Chasse with geologic mapping at 1:5000 on North Ridge. D.G. and Bob claims.

June 3-4 - 2 days @ $46/day 92.00

Camp construction.

June 5-8 - 4 days @ $46/day 184.00

Assisting J. Chasse with geologic mapping at 1:5000 on North Ridge. D.G. and Bob claims.

June 9-13 - 5 days @ $46/day 230.00

Working with D. Storie. Extended grid on Tin Dome and started soil sampling on same. D.G. and Bob claims.

June 14-15 - 2 days @ $46/day 92.00

Working in camp on a dry with shower and sink facilities.

June 16-18 - 3 days @ $46/day 138.00

Started magnetometer survey. Poor readings because of sunspot activity, but continued when "quieter" period came about. Surveyed line 39+250E, baseline 10+000N between lines 39+250E and 38+200E. Mar, R.D. and Smoky claims.

| | |
|---|---|
| June 19 - 1 day @ $46/day<br>Soil sampled new lines on Tin Dome. D.G. and Bob claims. | $ 46.00 |
| June 20-23 - 4 days @ $46/day<br>Camp construction. Working on dry and kitchen. | 184.00 |
| June 24-27 - 4 days @ $46/day<br>Soil sampling on Tin Dome grid with Don Storie. Sampling completed. D.G. and Bob claims. | 184.00 |
| June 28 - July 2 - 5 days @ $46/day<br>Magnetometer surveys on lines 38+650E, 38+500E, 37+750E, 36+700E, 36+850E. Problems with high interference activity. Had to re-do some lines several times to check. R.D., Dave and Smoky claims. | 230.00 |
| July 4-10 - 7 days @ $46/day<br>Soil sampled on new grid south of baseline line 37+600E, 37+100E, 36+700E. Plot results and sample locations on rough maps. | 322.00 |
| July 11-14 - 4 days @ $46/day<br>Building core racks and core logging shed. Set up core splitter on solid base. | 184.00 |
| August 8-10 - 3 days @ $46/day<br>Assisting S. Bartlett with detailed geologic mapping 1:5000 in area of Potato Hills. Mar and Jeff claims. | 138.00 |
| August 14 - 1 day @ $46/day<br>Final samples taken on Tin Dome grid. D.G. and Bob claims. | 46.00 |
| August 18 - 1 day @ $46/day<br>Soil sampled line 36+250E on new Dublin Gulch grid. Smoky and D.G. claims. | 46.00 |

August 19-22 - 4 days @ $46/day $ 184.00

Magnetometer survey. Lines 38+350E, 38+500E, 38+650E, 38+950E, 37+450E, 37+600E, 39+100E, 39+250E, 39+400E.

August 30 - 1 day @ $46/day 46.00

Soil sampling on lines 35+500E and 35+350E on new Dublin Gulch grid.

Theresa Skinner - Secretary
C/- 1600-1066 W. Hastings St
Vancouver, BC

January 2 - April 1, 1980 $1000.00/month 2000.00

Typing up tables and rough draft of report. Correct errors etc. Type up final draft of report.

Total wages paid - Dublin Gulch Project - field and office work $71220.00

Various individuals listed above show gaps in their working time. This is because their time was strictly related to diamond drilling and applied as such to the various claim groups described further on in the appendix.

Excess money spent on diamond drilling left over after claim grouping and assessment requirements were met amounts to: $114,787.41

Invoiced expenditures incurred for assessment of Dublin Gulch property - 1979. 268 ungrouped claims. D.G., Bob, Jeff, Smoky and Alec - see list.next page

| | | |
|---|---|---|
| Trans North Turbo Air<br>Mayo, YT | Helicopter services utilized in mobilizing camp and personnel due to flooded road.<br>May 29, 30, 31 and in June 18 hours + fuel. | $7089.41 |
| Northwest Telephone<br>Whitehorse, YT | Camp office telephone and radio telephone rental and long distance communications -<br>May, June, July, August, September. | 1322.46 |
| Tintina Expediting<br>Mayo, YT | Expediting services for camp and drill support -<br>May, June, July, August, September. | 3829.50 |
| Chemex Laboratories<br>212 Brooksbank Avenue<br>North Vancouver, BC | No drill core assays<br>Soil sample analysis - 2070 samples x $11/sample | 22,755.00 |
| Geonics Limited<br>1745 Meyerside Drive<br>Mississauga, Ontario | Rental of geophysical equipment - 2 months<br>July and August @ $440/month | 880.00 |
| B.C. Industries<br>960 Richards Street<br>Vancouver, BC | Geological field supplies - compasses, drafting table material, planimeter, stereoscope etc. | 7520.84 |
| Bema Industries<br>5780 - 203rd Street<br>Langley, BC | Grid survey and line cutting on new grid south of baseline 10+000N and new Dublin Gulch grid running northwest from baseline 10+000N. 30 miles of line work done - not all cut @ $499/mile. | 14,981.08 |
| Deakin Equipment<br>Powell Street<br>Vancouver, BC<br>Genier Enterprises<br>Mayo, YT<br>Northward Airline<br>Mayo, YT<br>C.P. Air - Whitehorse, YT<br>Stewart Valley Enterprises<br>Mayo, YT | Camp supplies and shipping. Hot water tank, plumbing material, lumber and plywood for camp construction, core racks and core logging shed. Heating oil, helicopter fuel, gasoline and propane. Sample shipping and shipping of core boxes, drill cement etc. | 12,660.19 |
| Atled Explorations Ltd.<br>1600 - 1066 W. Hastings, Van. B.C. | D - 7 cat rental for trenching and drill site preparation<br>230 hours at $40/hr. | $9200.00 |

| | | |
|---|---|---|
| Edco Drafting & | | |
| Altair Drafting<br>821 West Pender St<br>Vancouver, BC | Drafting of all maps for report<br>Hours @ $18/hour 670 hours | $12060.00 |
| Vancal Reproductions<br>1199 West Hastings Street<br>Vancouver, BC | Reproducing all mylars to black line prints. | $ 400.00 |
| Dominion Blueprint<br>1531 West Pender Street<br>Vancouver, BC | Photo blowup map of sections of 1:5000 maps to scale of 1:1000 to make new base maps for drilling areas. | 1893.24 |
| Danny's Department Store<br>Mayo, YT | Grocery supplies for 1979 field season<br>May - September | 15,033.95 |
| Vancouver Petrographics<br>8887 Nash Street<br>Langley, BC | Thin sections of rock and drill core sections cut and read. | 739.00 |
| Canuck Trucks<br>1790 Marine Drive<br>North Vancouver, BC<br><br>Avis Truck Rentals<br>C/- Tintina Expediting<br>Box 159<br>Mayo, YT | Rental of 3 trucks from Vancouver plus rental of 2 trucks from Avis in Mayo. Used for all aspects of project, from drilling, linecutting to expediting materials from Mayo to property. | 15,103.19 |
| Canadian Propane<br>Whitehorse, YT | Equipment rentals and repairs other than vehicles. Part repairs for Argo A.T.V. supplied from Edmonton, Alta. | 3,672.22 |
| Total invoiced expenditures = | | 129,140.08 |

Final total = total wages + drilling excess + total invoiced expenditures

$71220.00 & $114,787.41 & $129,140.08 = $315,147.49

Schedule of Claim Renewals and Work to Accompany

Form C - Application for a Certificat of Work

Present Expiry Date: Oct.1.1982

| Claim No. | Grant No. | Renew To | Claim No. | Filing Fees $ | Assessment Requirement $ |
|---|---|---|---|---|---|
| Alec 21 | YA 30100 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 23 | YA 30102 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 24 | YA 30103 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 35 | YA 30114 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 36 | YA 30115 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 37 | YA 30116 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 38 | YA 30117 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 39 | YA 30118 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 40 | YA 30119 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 44 | YA 30072 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 45 | YA 30073 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 46 | YA 30074 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 47 | YA 30075 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 51 | YA 30076 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 52 | YA 30077 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 53 | YA 30078 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 54 | YA 30079 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 62 | YA 30080 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 64 | YA 30082 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 75 | YA 30085 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 2 | YA 17730 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 3 | YA 17731 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 4 | YA 17732 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 5 | YA 17733 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 6 | YA 17734 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 7 | YA 17735 | Oct.1.1986 | 4 | 20 | 400 |

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| Claim No. | Grant No. | Renew To | Claim No. | Filing Fees $ | Assessment Requirement $ |
|---|---|---|---|---|---|
| Bob 8 | YA 17736 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 9 | YA 17737 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 10 | YA 17738 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 11 | YA 17739 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 12 | YA 17740 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 13 | YA 17741 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 14 | YA 17742 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 15 | YA 17743 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 16 | YA 17744 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 17 | YA 17745 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 18 | YA 17746 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 19 | YA 17747 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 20 | YA 17748 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 21 | YA 17749 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 22 | YA 17750 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 23 | YA 17751 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 24 | YA 17752 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 25 | YA 17753 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 26 | YA 17754 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 27 | YA 17755 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 28 | YA 17756 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 29 | YA 17757 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 30 | YA 17758 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 31 | YA 17759 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 32 | YA 17760 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 33 | YA 17761 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 34 | YA 17762 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 35 | YA 17763 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 36 | YA 17764 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 37 | YA 17765 | Oct.1.1986 | 4 | 20 | 400 |

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| Claim No. | Grant No. | Renew To | Claim No. | Filing Fees $ | Assessment Requirement $ |
|---|---|---|---|---|---|
| Bob 38 | YA 17766 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 39 | YA 17767 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 40 | YA 17768 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 41 | YA 17769 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 42 | YA 17770 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 43 | YA 17771 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 44 | YA 17772 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 45 | YA 17773 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 46 | YA 17774 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 47 | YA 17775 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 48 | YA 17776 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 49 | YA 17777 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 50 | YA 17778 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 51 | YA 17779 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 52 | YA 17780 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 53 | YA 17781 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 54 | YA 17782 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 55 | YA 17783 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 56 | YA 17784 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 57 | YA 17785 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 58 | YA 17786 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 59 | YA 17787 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 60 | YA 17788 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 61 | YA 17789 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 62 | YA 17790 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 63 | YA 17791 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 64 | YA 17792 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 65 | YA 17793 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 66 | YA 17794 | Oct.1.1986 | 4 | 20 | 400 |

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| Claim No. | Grant No. | Renew To | Claim No. | Filing Fees $ | Assessment Requirement $ |
|---|---|---|---|---|---|
| Bob 67 | YA 17795 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 68 | YA 17796 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 69 | YA 17797 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 70 | YA 17798 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 71 | YA 17799 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 72 | YA 17800 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 73 | YA 17801 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 49 | YA 17874 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 50 | YA 17885 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 51 | YA 17876 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 52 | YA 17877 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 54 | YA 17879 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 67 | YA 17884 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 68 | YA 17885 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 69 | YA 17886 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 70 | YA 17887 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 71 | YA 17888 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 72 | YA 17889 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 73 | YA 17890 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 74 | YA 17891 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 75 | YA 17892 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 76 | YA 17893 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 77 | YA 17894 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 78 | YA 17895 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 79 | YA 17896 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 80 | YA 17897 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 83 | YA 17900 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 84 | YA 17901 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 85 | YA 17902 | Oct.1.1986 | 4 | 20 | 400 |

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| Claim No. | Grant No. | Renew To | Claim No. | Filing Fees $ | Assessment Requirement $ |
|---|---|---|---|---|---|
| Jeff 86 | YA 17903 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 87 | YA 17904 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 88 | YA 17905 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 89 | YA 17906 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 90 | YA 17907 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 91 | YA 17908 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 92 | YA 17909 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 93 | YA 17910 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 94 | YA 17911 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 95 | YA 17912 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 96 | YA 17913 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 99 | YA 17916 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 100 | YA 17917 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 101 | YA 17918 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 102 | YA 17919 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 103 | YA 17920 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 104 | YA 17921 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 105 | YA 17922 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 106 | YA 17923 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 107 | YA 17924 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 108 | YA 17925 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 109 | YA 17926 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 110 | YA 17927 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 111 | YA 17928 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 112 | YA 17929 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 1 | YA 17930 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 2 | YA 17931 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 3 | YA 17932 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 4 | YA 17933 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 5 | YA 17934 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 6 | YA 17935 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 7 | YA 17936 | Oct.1.1986 | 4 | 20 | 400 |

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| Claim No. | Grant No. | Renew To | Claim No. | Filing Fees $ | Assessment Requirement $ |
|---|---|---|---|---|---|
| Smoky 8 | YA 17937 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 9 | YA 17938 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 10 | YA 17939 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 11 | YA 17940 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 12 | YA 17941 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 13 | YA 17942 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 14 | YA 17943 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 15 | YA 17944 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 16 | YA 17945 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 17 | YA 17946 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 18 | YA 17947 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 19 | YA 17948 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 20 | YA 17949 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 21 | YA 17950 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 22 | YA 17951 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 23 | YA 17952 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 24 | YA 17953 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 25 | YA 17954 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 26 | YA 17955 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 27 | YA 17956 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 28 | YA 17957 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 29 | YA 17958 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 30 | YA 17959 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 31 | YA 17960 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 32 | YA 17961 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 33 | YA 17962 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 34 | YA 17963 | Oct.1.1986 | 4 | 20 | 400 |

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| Claim No. | Grant No. | Renew To | Claim No. | Filing Fees $ | Assessment Requirement $ |
|---|---|---|---|---|---|
| Smoky 35 | YA 17964 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 36 | YA 17965 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 37 | YA 17966 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 38 | YA 17967 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 39 | YA 17968 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 40 | YA 17969 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 41 | YA 17970 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 42 | YA 17971 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 43 | YA 17972 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 48 | YA 17973 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 49 | YA 17974 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 50 | YA 17975 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 55 | YA 17976 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 56 | YA 17977 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 57 | YA 17978 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 58 | YA 17979 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 59 | YA 17980 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 60 | YA 17981 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 61 | YA 17982 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 66 | YA 17983 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 68 | YA 17985 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 69 | YA 17986 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 70 | YA 17987 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 71 | YA 17988 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 72 | YA 17989 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 73 | YA 17990 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 80 | YA 17993 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 81 | YA 17994 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 82 | YA 17995 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 41 | YA 17996 | Oct.1.1986 | 4 | 20 | 400 |

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| Claim No. | Grant No. | Renew To | Claim No. | Filing Fees $ | Assessment Requirement $ |
|---|---|---|---|---|---|
| Alec 42 | YA 17997 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 51 | YA 30006 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 53 | YA 30008 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 54 | YA 30009 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 55 | YA 30010 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 56 | YA 30011 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 57 | YA 30012 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 58 | YA 30013 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 59 | YA 30014 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 60 | YA 30015 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 1 | YA 14944 | Apr.12.1986 ** | 4 | 20 | 400 |
| D.G. 39 | YA 14982 | Apr.12.1986 ** | 4 | 20 | 400 |
| D.G. 42 | YA 14985 | Apr.12.1986 ** | 4 | 20 | 400 |
| D.G. 44 | YA 14987 | Apr.12.1986 ** | 4 | 20 | 400 |
| D.G. 54 | YA 14997 | Apr.12.1986 ** | 4 | 20 | 400 |
| D.G. 56 | YA 14999 | Apr.12.1986 ** | 4 | 20 | 400 |
| D.G. 2 | YA 14945 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 3 | YA 14946 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 4 | YA 14947 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 5 | YA 14948 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 6 | YA 14949 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 7 | YA 14950 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 8 | YA 14951 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 9 | YA 14952 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 10 | YA 14953 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 11 | YA 14954 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 12 | YA 14955 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 13 | YA 14956 | Oct.1.1986 | 4 | 20 | 400 |

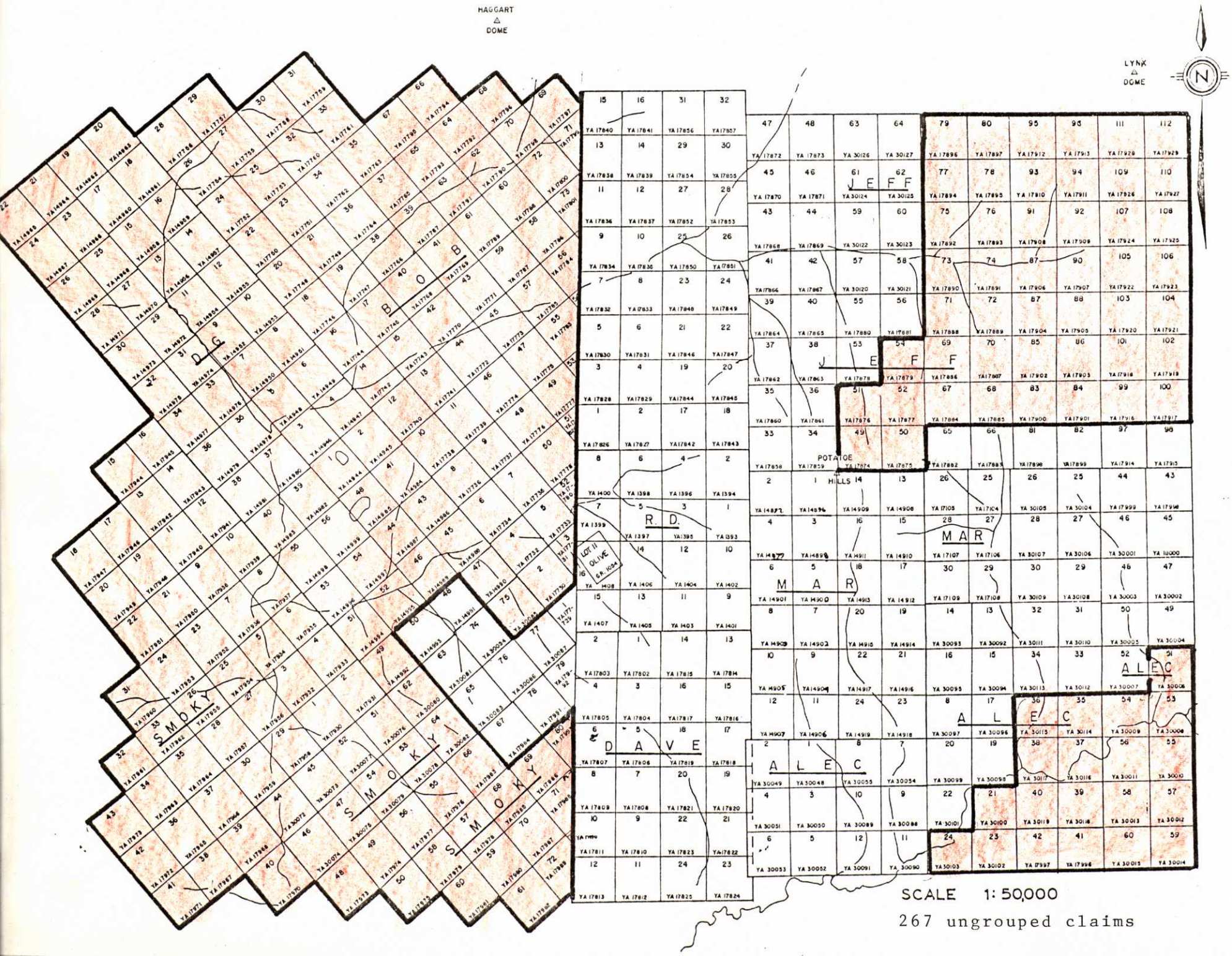
** Expiry Date: Apr.12.1982

...../9

| Claim No. | Grant No. | Renew To | Claim No. | Filing Fees $ | Assessment Requirement $ |
|---|---|---|---|---|---|
| D.G. 14 | YA 14957 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 15 | YA 14958 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 16 | YA 14959 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 17 | YA 14960 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 18 | YA 14961 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 19 | YA 14962 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 20 | YA 14963 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 21 | YA 14964 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 22 | YA 14965 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 23 | YA 14966 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 24 | YA 14967 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 25 | YA 14968 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 26 | YA 14969 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 27 | YA 14970 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 28 | YA 14971 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 29 | YA 14972 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 30 | YA 14973 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 31 | YA 14974 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 32 | YA 14975 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 33 | YA 14976 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 34 | YA 14977 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 35 | YA 14978 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 36 | YA 14979 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 37 | YA 14980 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 38 | YA 14981 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 40 | YA 14983 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 41 | YA 14984 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 43 | YA 14986 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 45 | YA 14988 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 46 | YA 14989 | Oct.1.1986 | 4 | 20 | 400 |

...../10

| Claim No. | Grant No. | Renew To | Claim No. | Filing Fees $ | Assessment Requirement $ |
|---|---|---|---|---|---|
| D.G. 47 | YA 14990 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 49 | YA 14992 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 51 | YA 14994 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 52 | YA 14995 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 53 | YA 14996 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 55 | YA 14998 | Oct.1.1986 | 4 | 20 | 400 |
| TOTAL | | | | $5,340 | $106,800 |




SCALE 1: 50,000

267 ungrouped claims

# APPENDIX 111

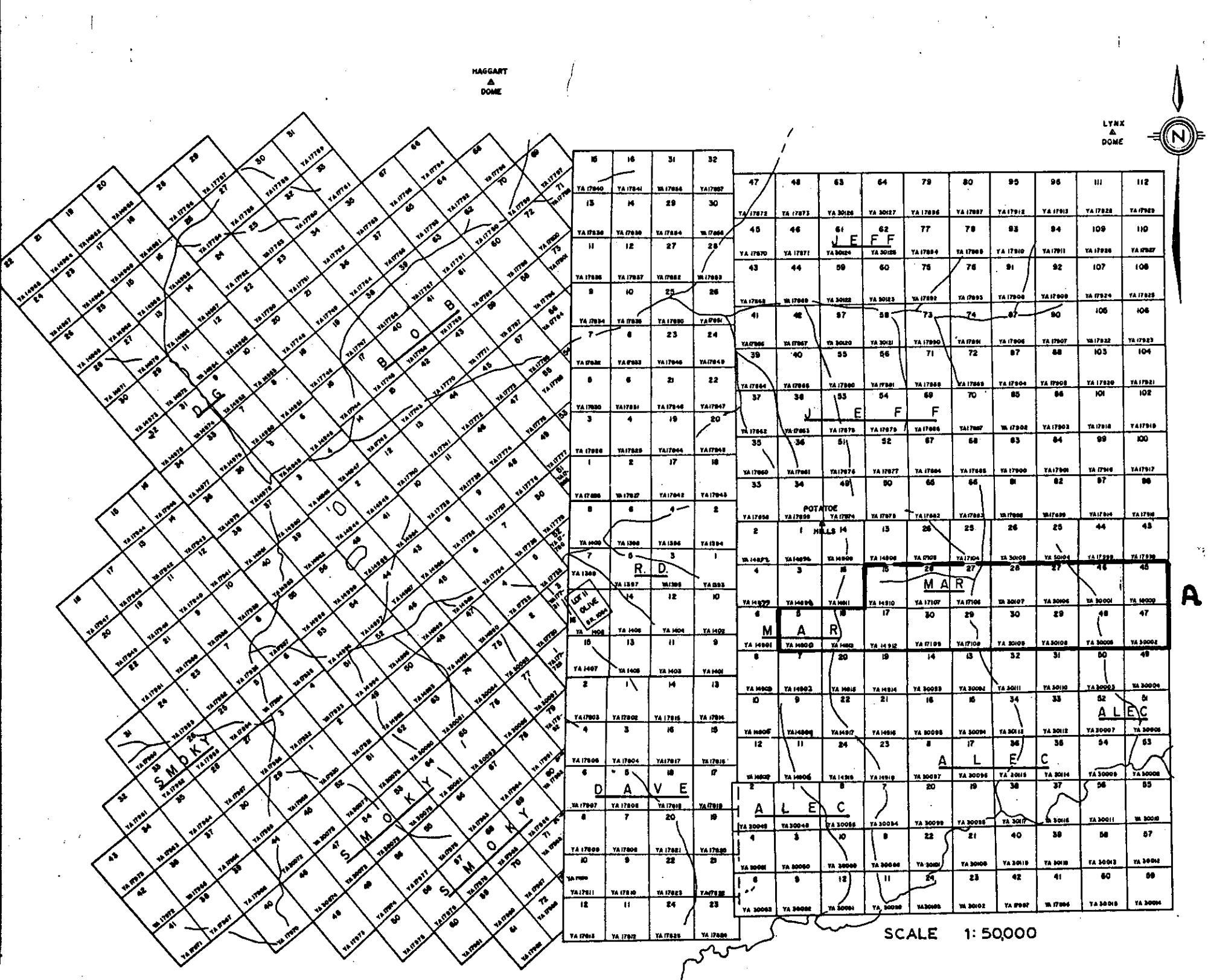
Statement or Costs - Group A

Claim list
Location maps
Statements of costs
Invoices
Statements of Qualification

Schedule of Claim Renewals and Work
to Accompany Form C - Application for
a Certificate of Work and Grouping Certificate

GROUP - A

| Claim | Grant No | Expire Date | Renew To | Claim Yrs. | Filing Fees $ | Assessment Requiring $ |
|---|---|---|---|---|---|---|
| Mar 5 | YA 14900 | Oct.1.1982 | Oct.1.1986 | 4 | $ 20 | $ 400 |
| Mar 15 | YA 14910 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 17 | YA 14912 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 18 | YA 14913 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 27 | YA 17106 | Oct.5.1981 | Oct.5.1985 | 4 | 20 | 400 |
| Mar 28 | YA 17107 | Oct.5.1981 | Oct.5.1985 | 4 | 20 | 400 |
| Mar 29 | YA 17108 | Oct.5.1981 | Oct.5.1985 | 4 | 20 | 400 |
| Mar 30 | YA 17109 | Oct.5.1981 | Oct.5.1985 | 4 | 20 | 400 |
| Alec 27 | YA 30106 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 28 | YA 30107 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 29 | YA 30108 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 30 | YA 30109 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 45 | YA 17800 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 46 | YA 30001 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 47 | YA 30002 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 48 | YA 30003 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| | | | | | $320 | $6400 |


HAGGART DOME
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YA17816

LEGEND

● Diamond drill hole_1979

Trench_1979

CANADA TUNGSTEN MINING CORP. LTD.

DUBLIN GULCH PROJECT
YUKON TERRITORY_1979

LOCATION MAP

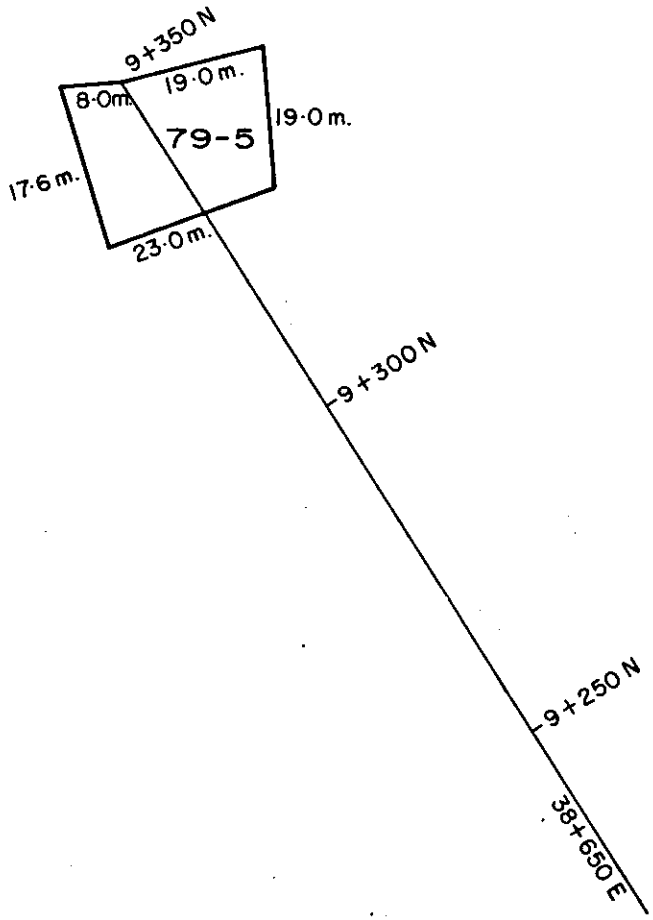
| | |
|---|---|
| SCALE: IN. 1:10000 | NTS No. 106-D-4 |
| DATE: 3.1.1980 | MAP No. |
| DRAWN BY: W.G. | To accompany report: |
| REVISED BY | |

# DUBLIN GULCH PROJECT
## YUKON TERRITORY - 1979
## DRILL SITE 79-5
# CLAIM MAR. 5

SCALE 1:1000

Fig No. 22

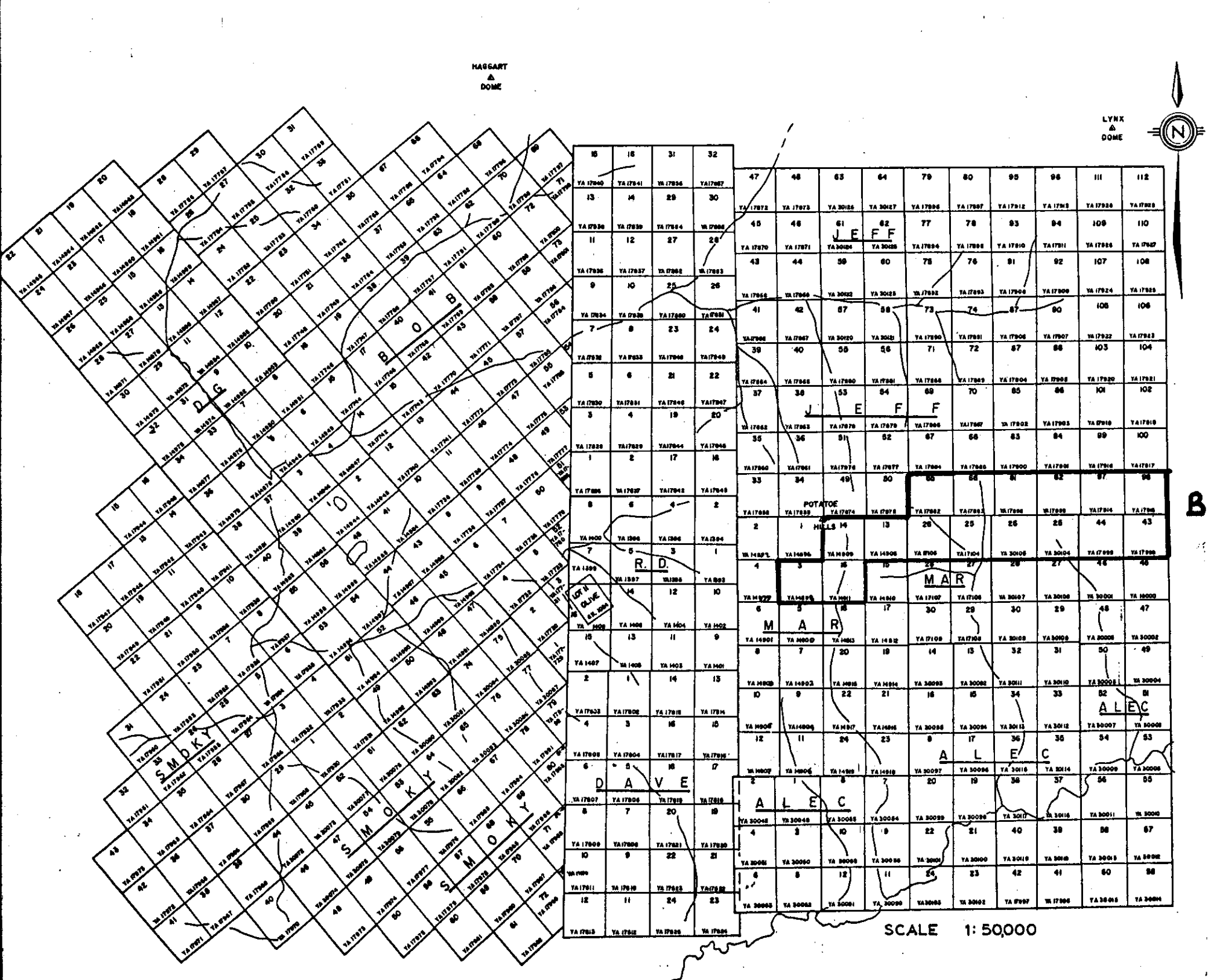
REFER TO GEOLOGY MAP NO. 1F




DRAWN BY: EDCO LTD.

Schedule of Claim Renewals and Work
to Accompany Form C - Application for
a Certificate of Work and Grouping Certificate

| Claim | Grant No | Expire Date | GROUP B Renew To | Claim Yrs. | Filing Fees $ | Assessment Requiring $ |
|---|---|---|---|---|---|---|
| Mar 3 | YA 14898 | Oct.1.1982 | Oct.1.1986 | 4 | $ 20 | $ 400 |
| Mar 13 | YA 14908 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 14 | YA 14909 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 16 | YA 14911 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 25 | YA 17104 | Oct.5.1981 | Oct.5.1985 | 4 | 20 | 400 |
| Mar 26 | YA 17105 | Oct.5.1981 | Oct.5.1985 | 4 | 20 | 400 |
| Alec 25 | YA 30104 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 26 | YA 30105 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 43 | YA 17998 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 44 | YA 17999 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 65 | YA 17882 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 66 | YA 17883 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 81 | YA 17898 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 82 | YA 17899 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 97 | YA 17914 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 98 | YA 17915 | Oct.1.1982 | Oct.1.1986 | 4 | 20 | 400 |
| | | | | | $320 | $6400 |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LOT 11 OLIVE
SCALE 1: 50,000



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LEGEND

● Diamond drill hole_1979

Trench_1979

CANADA TUNGSTEN MINING CORP. LTD.

DUBLIN GULCH PROJECT
YUKON TERRITORY_1979

LOCATION MAP

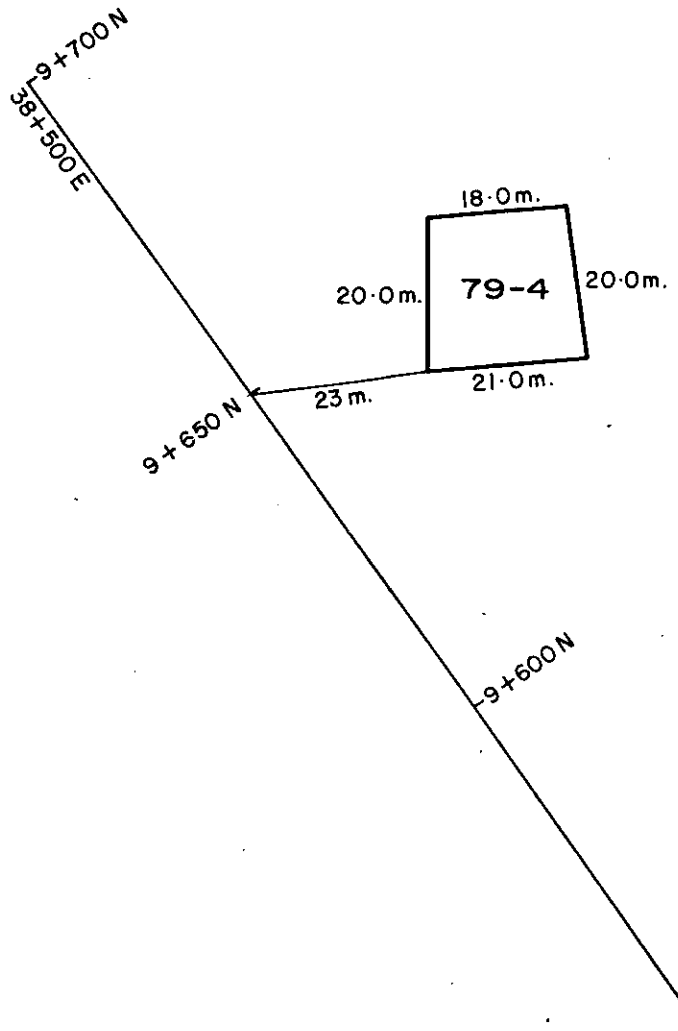
| | |
|---|---|
| SCALE IN: 1:10000 | NTS No. 106-D-4 |
| DATE: 3.1.1980 | MAP No. |
| DRAWN BY: W.G. | To accompany report: |
| REVISED BY | |

# DUBLIN GULCH PROJECT
## YUKON TERRITORY - 1979
## DRILL SITE 79-4
# CLAIM MAR. 3

SCALE 1:1000

Fig No. 23

REFER TO GEOLOGY MAP NO. 1F



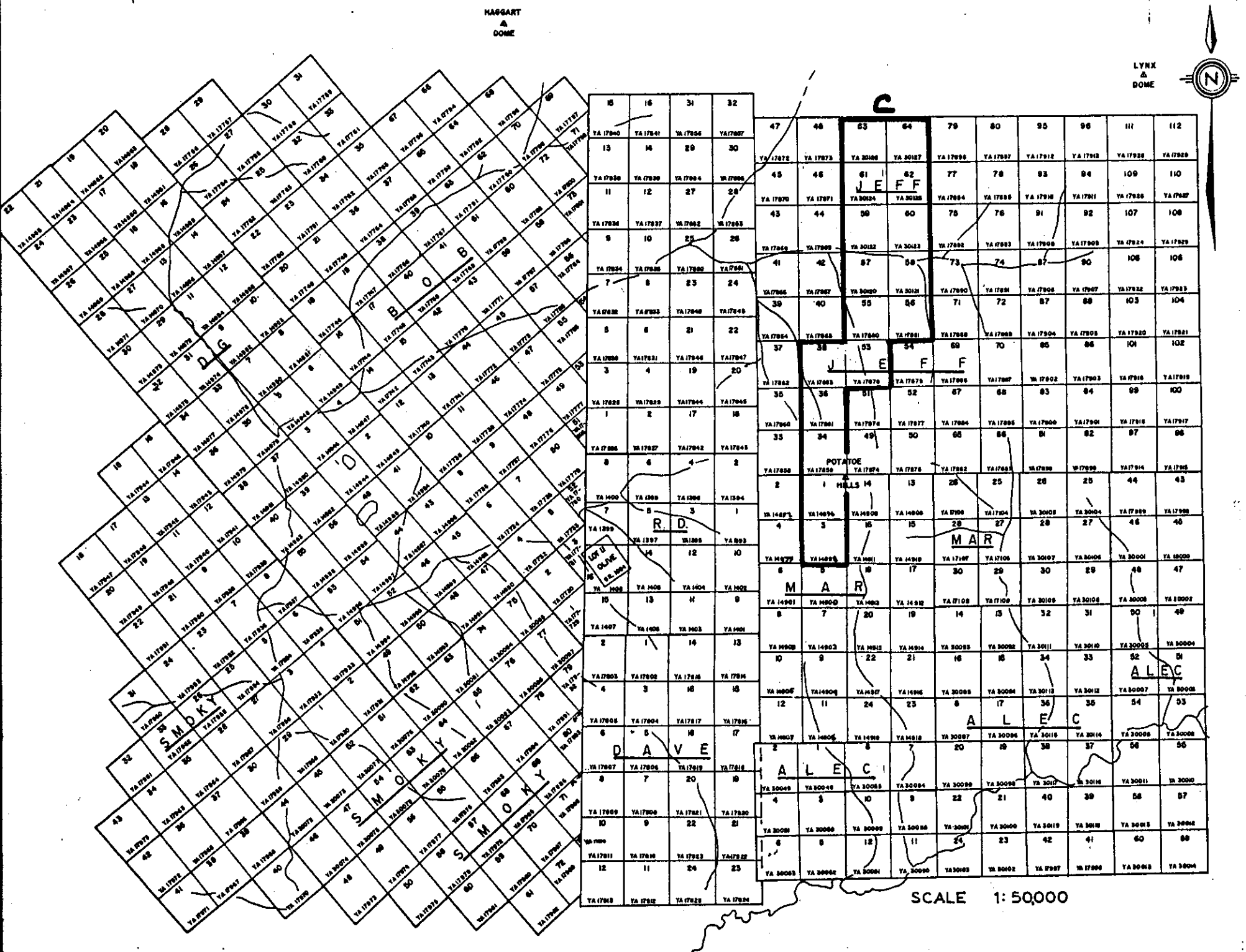

DRAWN BY: EDCO LTD.

Schedule of Claim Renewals and Work
to Accompany Form C - Application for
a Certificate of Work and Grouping Certificate

GROUP - C

Expire Date: Oct.1.1982

| Claim | Grant No | Renew To | Claims Yrs. | Filing Fees $ | Assessment Requiring $ |
|---|---|---|---|---|---|
| Mar 1 | YA 14896 | Oct.1.1986 | 4 | $ 20 | $ 400 |
| Mar 3 | YA 14898 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 34 | YA 17859 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 36 | YA 17861 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 38 | YA 17863 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 53 | YA 17878 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 55 | YA 17880 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 56 | YA 17881 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 57 | YA 30120 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 58 | YA 30121 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 59 | YA 30122 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 60 | YA 30123 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 61 | YA 30124 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 62 | YA 30125 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 63 | YA 30126 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 64 | YA 30127 | Oct.1.1986 | 4 | 20 | 400 |
| | | | | $320 | $6400 |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LOT 11 OLIVE
SCALE 1: 50,000




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LEGEND

● Diamond drill hole_1979

Trench_1979

CANADA TUNGSTEN MINING CORP. LTD.

DUBLIN GULCH PROJECT
YUKON TERRITORY_1979

LOCATION MAP

| | |
|---|---|
| SCALE: IN. 1:10000 | NTS No. 106-D-4 |
| DATE: 3.1.1980 | MAP No. |
| DRAWN BY W.G. | To accompany report |
| REVISED BY | |

# DUBLIN GULCH PROJECT
YUKON TERRITORY - 1979

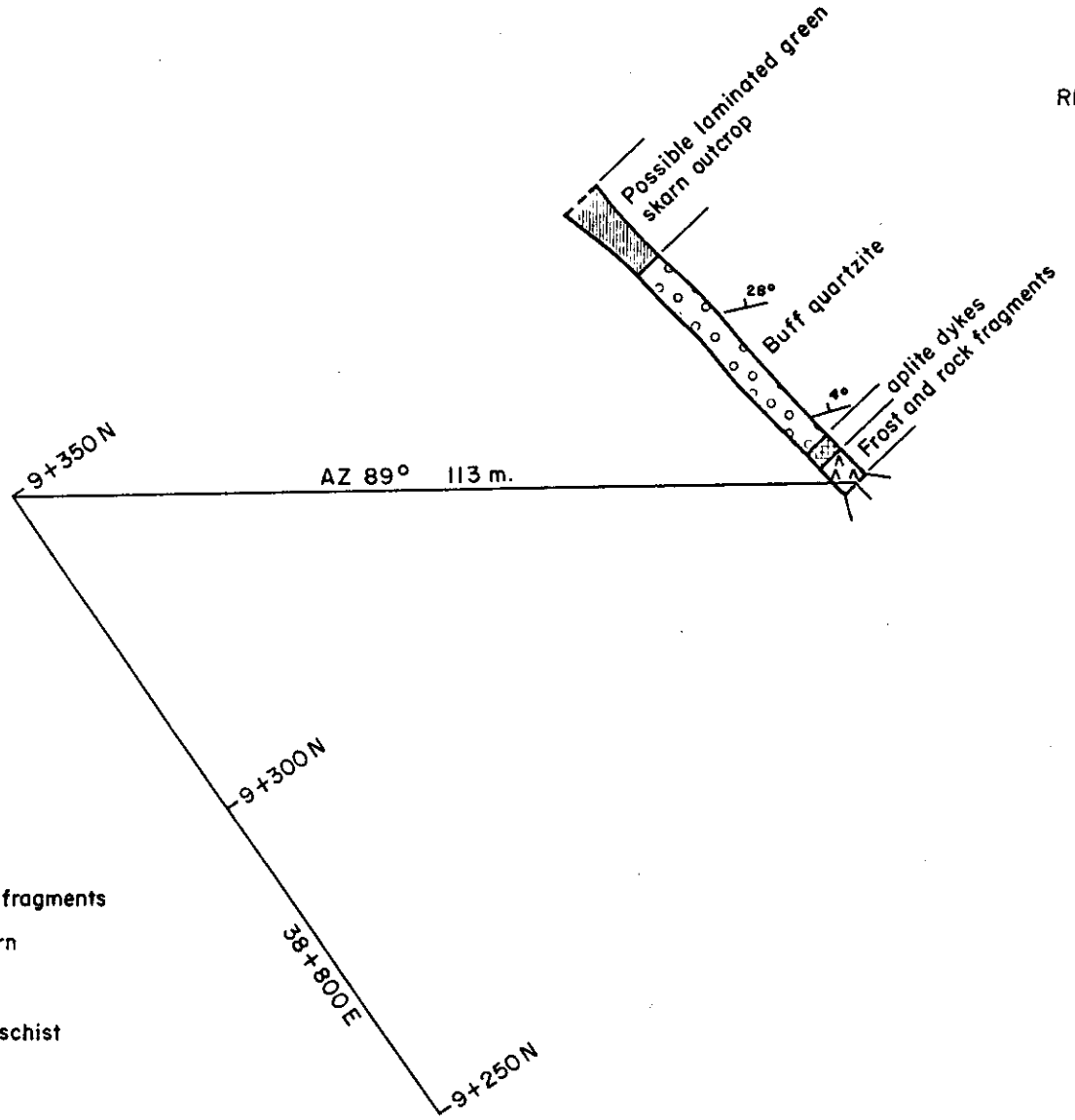
## TRENCH 1
## CLAIM MAR 1

SCALE 1:1000

Fig No. 7

REFER TO GEOLOGY MAP NO. 1F




LEGEND

- Frost and rock fragments
- Laminated skarn
- Aplite dykes
- Buff quartzite-schist

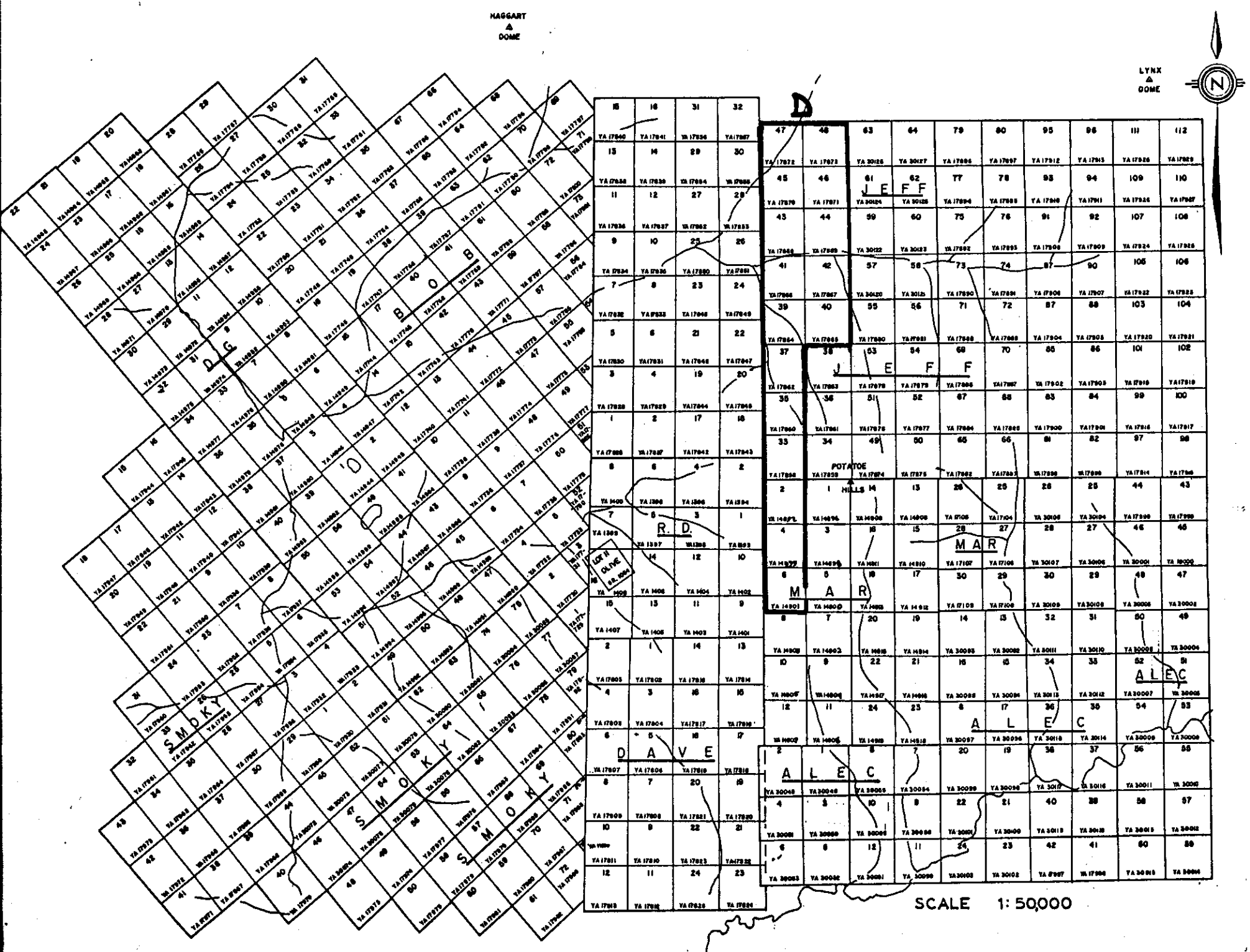
DRAWN BY: EDCO LTD.

Schedule of Claim Renewals and Work
to Accompany Form C - Application for
a Certificate of Work and Grouping Certificate

GROUP - D

Expire Date: Oct.1.1982

| Claim | Grant No. | Renew To | Claim Yrs. | Filing Fees $ | Assessment Requiring $ |
|---|---|---|---|---|---|
| Mar 2 | YA 14897 | Oct.1.1986 | 4 | $ 20 | $ 400 |
| Mar 4 | YA 14899 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 6 | YA 14901 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 33 | YA 17858 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 35 | YA 17860 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 37 | YA 17862 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 39 | YA 17864 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 40 | YA 17865 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 41 | YA 17866 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 42 | YA 17867 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 43 | YA 17868 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 44 | YA 17869 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 45 | YA 17870 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 46 | YA 17871 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 47 | YA 17872 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 48 | YA 17873 | Oct.1.1986 | 4 | 20 | 400 |
| | | | | $320 | $6400 |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SCALE 1: 50,000




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YA17816

LEGEND

● Diamond drill hole_1979

Trench_1979

CANADA TUNGSTEN MINING CORP. LTD.

DUBLIN GULCH PROJECT
YUKON TERRITORY_1979

LOCATION MAP

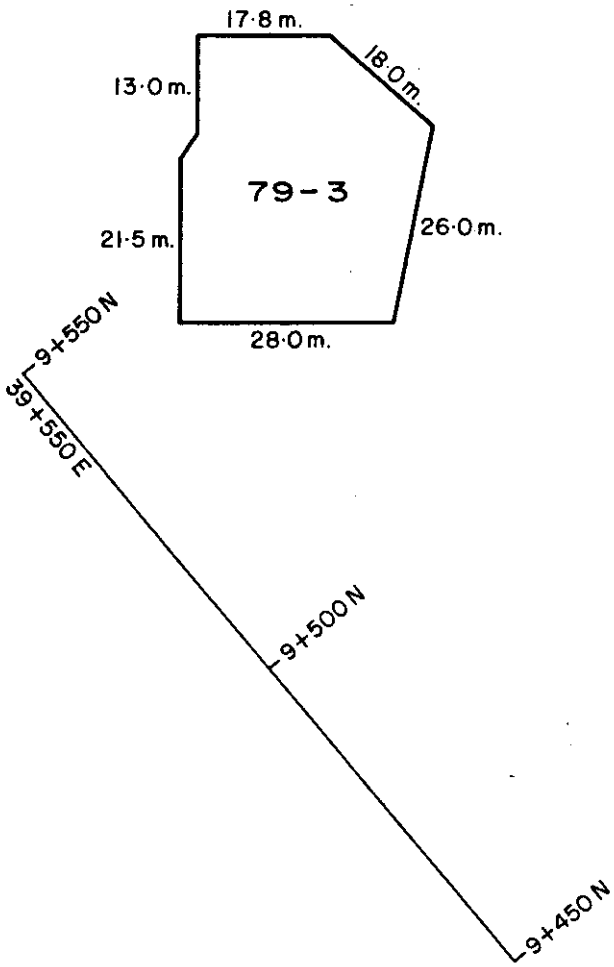
| | |
|---|---|
| SCALE IN: 1:10000 | NTS No. 106-D-4 |
| DATE: 3.1.1980 | MAP No. |
| DRAWN BY: W.G. | To accompany report: |
| REVISED BY: | |

# DUBLIN GULCH PROJECT
## YUKON TERRITORY - 1979
## DRILL SITE 79-3
# CLAIM MAR. 6

SCALE 1:1000

Fig No. 25

REFER TO GEOLOGY MAP NO. 1 F



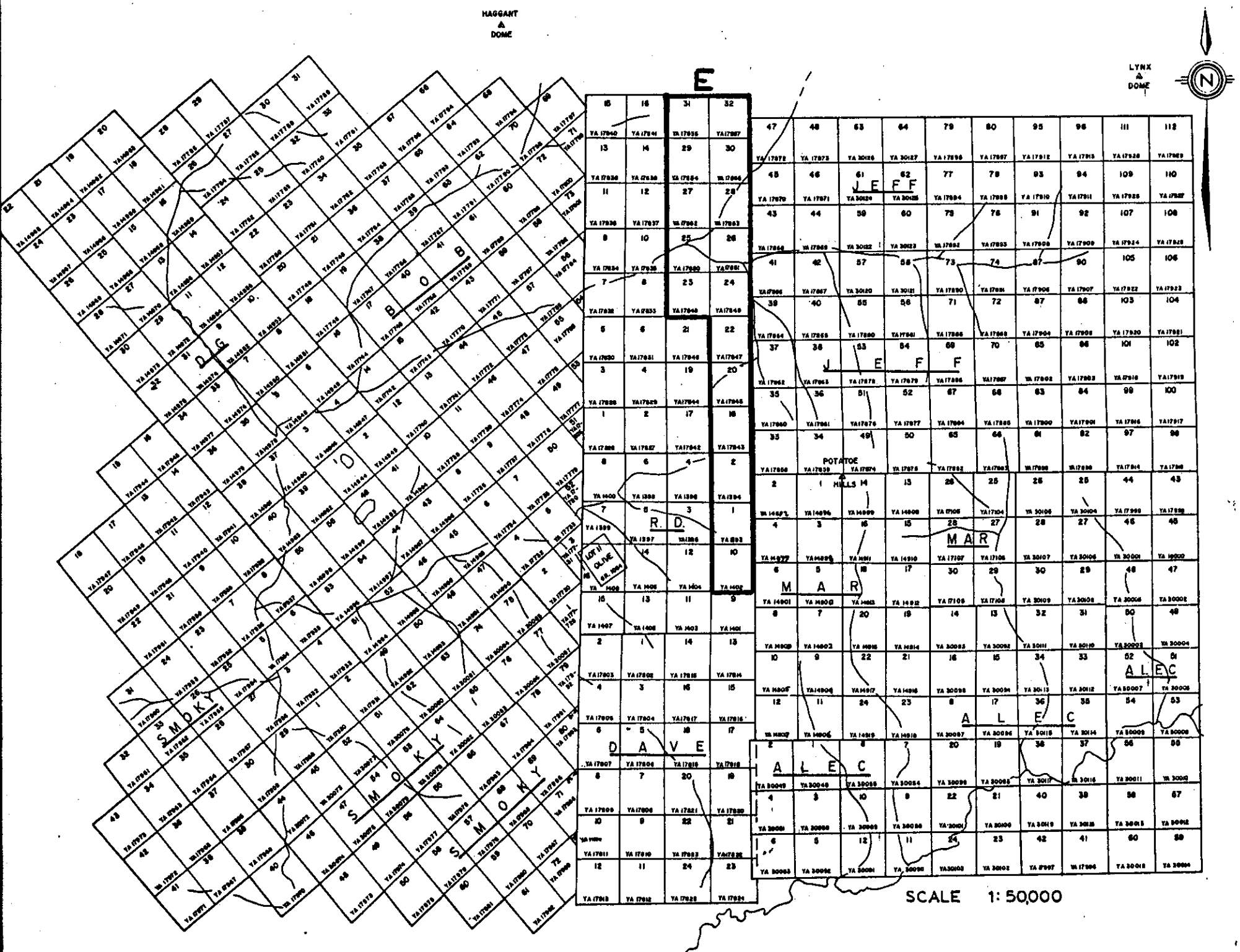

DRAWN BY: EDCO LTD.

Schedule of Claim Renewals and Work
to Accompany Form C - Application for
a Certificate of Work and Grouping Certificate

GROUP - E

Present Expiry Date: Oct.1.1982

| Claim No. | Grant No. | Renew To. | Claims Yrs. | Filing Fees $ | Assessment Requirements $ |
|---|---|---|---|---|---|
| R.D. 1 | YA 1393 | Oct.1.1986 | 4 | 20 | 400 |
| R.D. 2 | YA 1394 | Oct.1.1986 | 4 | 20 | 400 |
| R.D. 10 | YA 1402 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 18 | YA 17843 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 20 | YA 17845 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 22 | YA 17847 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 23 | YA 17848 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 24 | YA 17849 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 25 | YA 17850 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 26 | YA 17851 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 27 | YA 17852 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 28 | YA 17853 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 29 | YA 17854 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 30 | YA 17855 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 31 | YA 17856 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 32 | YA 17857 | Oct.1.1986 | 4 | 20 | 400 |
| | | | | $320 | $6400 |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POTATOE HILLS
LOT 11 OLIVE
SCALE 1: 50,000




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DAVE
79-20
6
10
YA 17814

16
DAVE
YA17817

15
DAVE
7
8
YA17816

LEGEND

● Diamond drill hole-1979

Trench-1979

CANADA TUNGSTEN MINING CORP. LTD.

DUBLIN GULCH PROJECT
YUKON TERRITORY-1979

LOCATION MAP

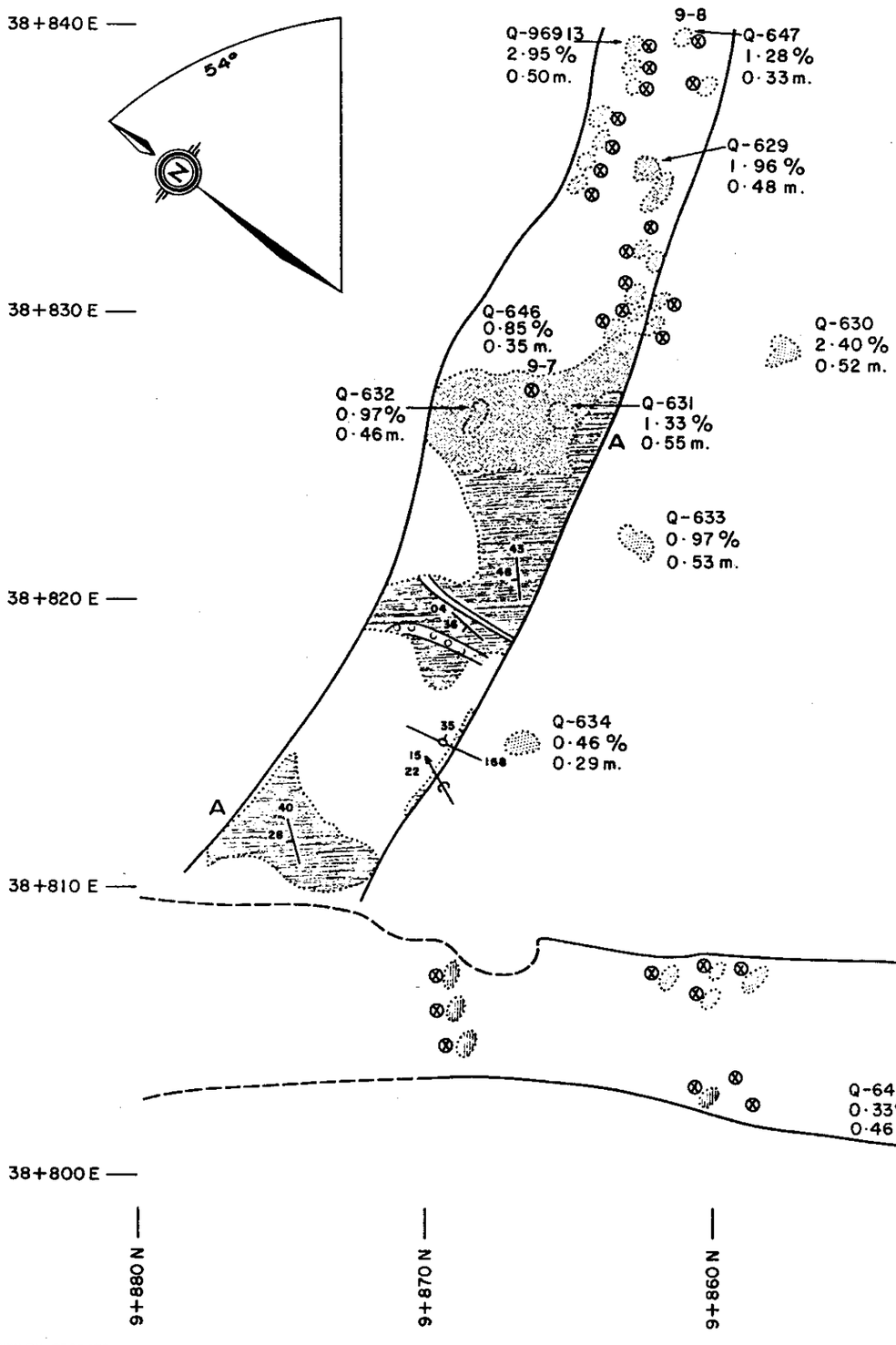
| | |
|---|---|
| SCALE: IN: 1:10000 | NTS No. 106-D-4 |
| DATE: 3.1.1980 | MAP No. |
| DRAWN BY W.G. | To accompany report. |
| REVISED BY | |

# DUBLIN GULCH PROJECT
## YUKON TERRITORY - 1979
## TRENCH 9
# CLAIM R.D.10

SCALE 1:200

Fig No.15

REFER TO GEOLOGY MAP NO. 1F




## LEGEND

### ROCK TYPES

- Vitreous dark green laminated skarn
- Laminated actinolite skarn
- Garnet skarn
- A Biotite-schist
  B Purple pyrop garnet biotite schist
- A Buff quartzite;
  B White pure quartzite,

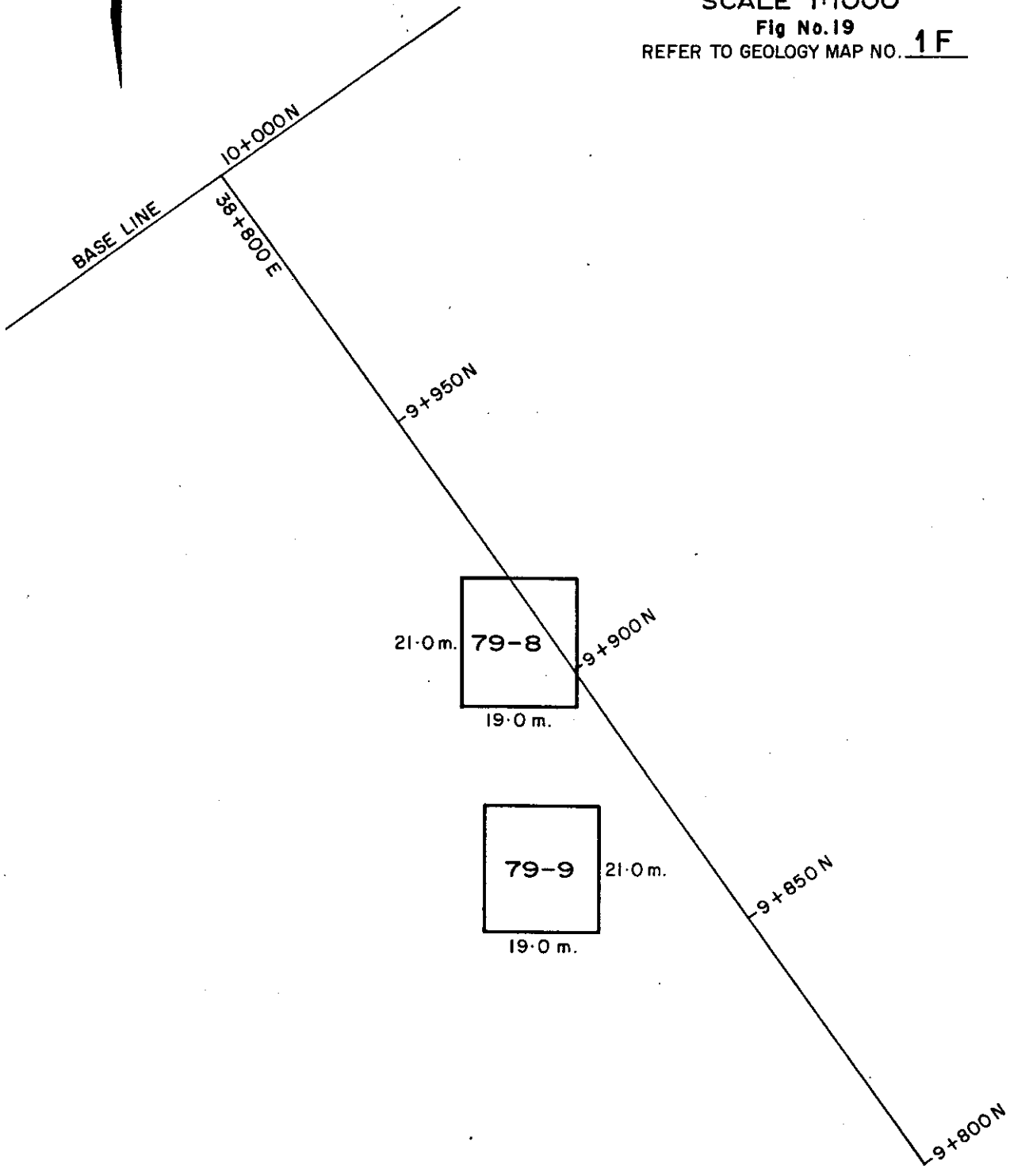
### GEOLOGICAL SYMBOLS

- ^ ^ ^ Pool
- ⊗ Trench float
- × Small outcrop
- Q-645 Channel sample with meterage. Sample No. prefixed 96
- 0·5% WO₃ percentage assay results
- ←℄— Minor fold axis, with trend and plunge
- —○— Minor fold axial plane, with strike and dip
- 9-1 Rock sample

DRAWN BY: EDCO LTD.

# DUBLIN GULCH PROJECT
YUKON TERRITORY - 1979
## DRILL SITE 79-8, 79-9
## CLAIM R.D. 10

SCALE 1:1000
Fig No. 19
REFER TO GEOLOGY MAP NO. 1F



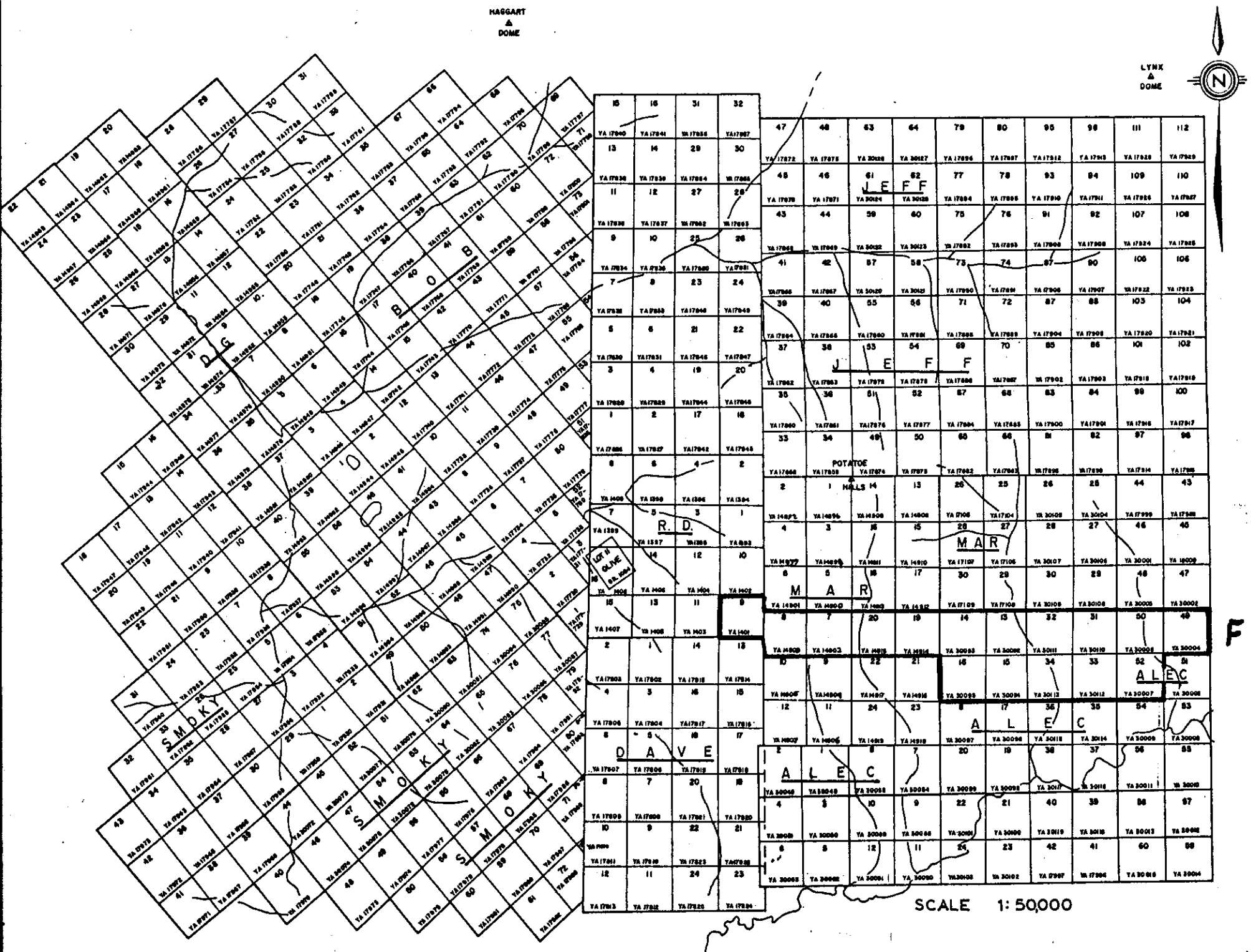

DRAWN BY: EDCO LTD.

Schedule of Claim Renewals and Work
to Accompany Form C - Application for
a Certificate of Work and Grouping Certificate

GROUP - F

Present Expiry Date: Oct.1.1982

| Claim No. | Grant No. | Renew To | Claim Yrs | Filing Fees $ | Assessment Requirements $ |
|---|---|---|---|---|---|
| R.D. 9 | YA 1401 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 7 | YA 14902 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 8 | YA 14903 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 19 | YA 14914 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 20 | YA 14915 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 13 | YA 30092 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 14 | YA 30093 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 15 | YA 30094 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 16 | YA 30095 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 31 | YA 30110 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 32 | YA 30111 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 33 | YA 30112 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 34 | YA 30113 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 49 | YA 30004 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 50 | YA 30005 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 52 | YA 30007 | Oct.1.1986 | 4 | 20 | 400 |
| | | | | $320 | $6400 |


HAGGART DOME
LYNX DOME
N
BOB
DG
SMOKY
SMOKY
SMOKY
JEFF
JEFF
POTATOE HILLS
R. D.
LOT 11 OLIVE
MAR
MAR
ALEC
ALEC
ALEC
DAVE
F
SCALE 1: 50,000




3
MAR
79-4
YA14899

10
R.D.
9
79-8
YA 14902
79-9

6
79-3
MAR
YA 14902

5
MAR
79-5
YA 14901

79-11 79-12
9
79-10 79-6 R.D. 79-13
79-14
79-7 79-1 79-15
79-21
YA 14901 79-16

8
1
2
3
MAR
YA 14904

79-2 79-17
4
13
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79-18
79-19
DAVE
79-20
6
10
YA 17814

16
DAVE
YA17817

15
DAVE
7
8
YA17816

LEGEND

● Diamond drill hole_1979

Trench_1979

CANADA TUNGSTEN MINING CORP. LTD.

DUBLIN GULCH PROJECT
YUKON TERRITORY_1979

LOCATION MAP

| | |
|---|---|
| SCALE IN : 1:10000 | NTS No. 106-D-4 |
| DATE 3.1.1980 | MAP No. |
| DRAWN BY W.G. | To accompany report: |
| REVISED BY | |

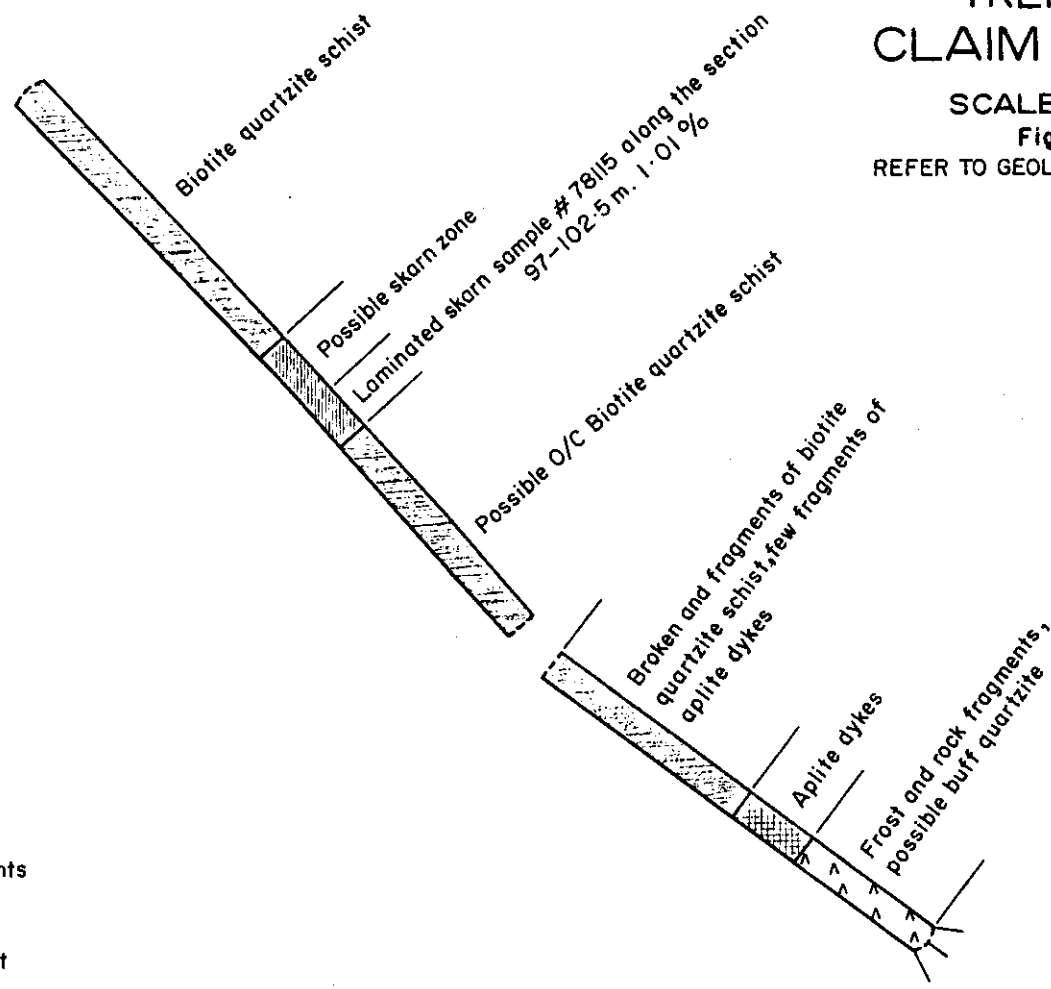
# DUBLIN GULCH PROJECT
YUKON TERRITORY - 1979

## TRENCH 2
## CLAIM MAR. 8

SCALE 1:1000

Fig No. 8

REFER TO GEOLOGY MAP NO. 1 F




LEGEND

- Frost and rock fragments
- Buff quartzite-schist
- Biotite-quartzite-schist
- Aplite dykes
- Laminated green skarn

DRAWN BY: EDCO LTD.

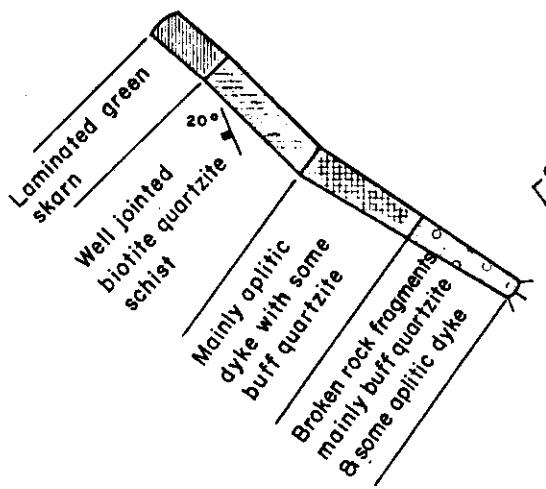
# DUBLIN GULCH PROJECT
YUKON TERRITORY - 1979

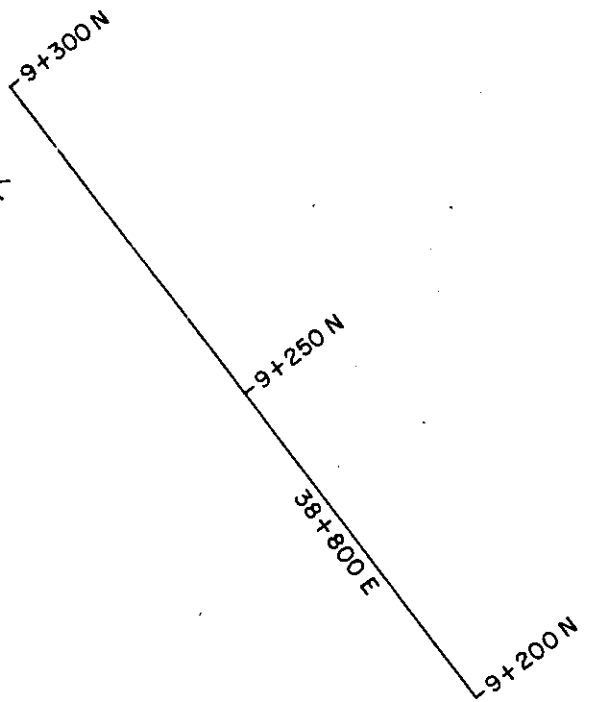
## TRENCH 3
## CLAIM MAR. 8

SCALE 1:1000

Fig No. 9

REFER TO GEOLOGY MAP NO. 1F




## LEGEND

- Frost and rock fragments
- Buff quartzite-schist
- Biotite quartzite-schist
- Aplite dykes
- Laminated green skarn

DRAWN BY: EDCO LTD.

YARDAGE OF MATERIALS REMOVED BY D-7 CAT
FROM TRENCHES AND DIAMOND DRILL SITES
DUBLIN GULCH - 1979

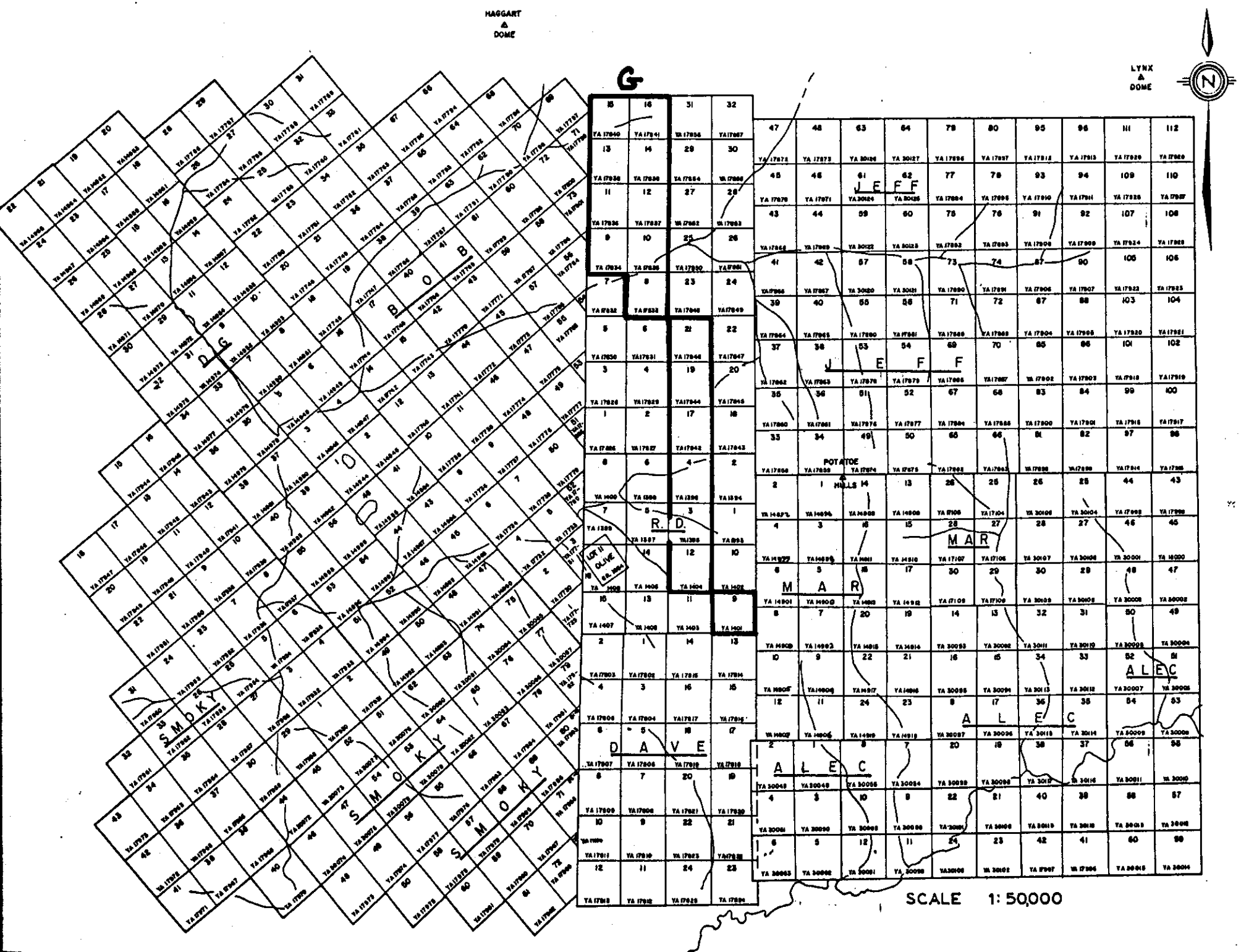
| TRENCH NO. | CLAIM LOCATION | DIMENSION (m) DISTANCE | WIDTH | VERTICAL DISTANCE | VOLUME $m^3$ | $yd^3$ | OPERATOR | DATE |
|---|---|---|---|---|---|---|---|---|
| 1 | MAR 8 | 52.8 | 4.2 | 0.83 | 184.1 | 241.1 | L. Haner | June 10/79 |
| 2 | MAR 8 | 161.0 | 4.1 | 0.83 | 548.0 | 718.0 | L. & B. Haner | June 10 & 30/79 |
| 3 | MAR 8 | 57.0 | 3.63 | 0.50 | 103.0 | 135.0 | L. & B. Haner | June 10 & 30/79 |
| 4 | DAVE 13 | 167.0 | 4.1 | 1.22 | 835.0 | 1094.0 | L. & B. Haner | June 10 & 29/79 |
| 5 | DAVE 13 | 86.0 | 4.1 | 0.9 | 317.0 | 415.0 | B. Haner | June 30/79 |
| 6 | DAVE 13 | 189.0 | 13.0 | 0.3 | 737.0 | 965.0 | L. & B. Haner | June 10 & 30/79 |
| 7 | DAVE 15 | 272.0 | 4.1 | 0.6 | 669.0 | 876.0 | L. & B. Haner | June 10 & 30/79 |
| 8 | DAVE 15 | 305.0 | 5.6 | 0.5 | 854.0 | 1119.0 | L. & B. Haner | June 10 & 30/79 |
| 9 | R.D. 10 | - | - | - | 324.4 | 425.0 | B. Haner | August 22/79 |
| 10 | DAVE 13 | - | - | - | 324.4 | 425.0 | B. Haner | August 22/79 |
| Sub-total | | | | | 4896.0 | 6413.2 | | |
| DRILL SITE | | | | | | | | |
| 1 | R.D. 9 | | | | 94.4 | 123.66 | B. Haner | June 28/79 |
| 2 | DAVE 13 | | | | 110.7 | 145.0 | " | " |
| 3 | MAR 6 | | | | 269.5 | 353.0 | " | June 29/79 |
| 4 | MAR 3 | | | | 117.0 | 153.3 | L. Haner | June 10/79 |
| 5 | MAR 5 | | | | 137.2 | 179.8 | " | " |
| 6 | R.D. 9 | | | | 119.1 | 156.0 | " | August 6/79 |
| 7 | R.D. 9 | | | | 119.1 | 156.0 | B. Haner | August 7/79 |
| 8 | R.D. 10 | | | | 119.1 | 156.0 | " | " |
| 9 | R.D. 10 | | | | 119.1 | 156.0 | " | " |
| 10 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 11 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 12 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 13 | R.D. 9 | | | | 119.1 | 156.0 | " | August 27/79 |
| 14 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 15 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 16 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 17 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 18 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 19 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 20 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 21 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| Sub-total | | | | | 2634.2 | 3450.8 | | |
| GRAND TOTAL | | | | | 7530.2 | 9864.0 | | |

Schedule of Claim Renewals and Work
to Accompany Form C - Application for
a Certificate of Work and Grouping Certificate

GROUP - G

Present Expiry Date: Oct.1.1982

| Claim No. | Grant No. | Renew To | Claim Yrs. | Filing Fees $ | Assessment Requirements $ |
|---|---|---|---|---|---|
| R.D. 3 | YA 1395 | Oct.1.1986 | 4 | 20 | 400 |
| R.D. 4 | YA 1396 | Oct.1.1986 | 4 | 20 | 400 |
| R.D. 9 | YA 1401 | Oct.1.1986 | 4 | 20 | 400 |
| R.D. 12 | YA 1404 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 8 | YA 17833 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 9 | YA 17834 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 10 | YA 17835 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 11 | YA 17836 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 12 | YA 17837 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 13 | YA 17838 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 14 | YA 17839 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 15 | YA 17840 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 16 | YA 17841 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 17 | YA 17842 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 19 | YA 17844 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 21 | YA 17846 | Oct.1.1986 | 4 | 20 | 400 |
| | | | | $320 | $6400 |


HAGGART DOME
LYNX DOME
N
G
BOB
DG
SMOKY
SMOKY
SMOKY
R.D.
LOT 11 OLIVE
DAVE
JEFF
JEFF
POTATOE HILLS
MAR
MAR
ALEC
ALEC
ALEC
SCALE 1: 50,000




3
MAR
79-4
YA14899

10
R.D.
9
79_8
79_9
YA 1402

6
79_3
MAR
YA 14902

5
MAR
79_5
YA 14901

79_11
79_12
9
79_6
79_10
R.D.
79_13
79_14
79_7
79_1
79_15
79_21
YA 1401
79_16

8
1
2
3
MAR
YA 14904

79_2
79_17
4
13
5
79_18
79_19
DAVE
79_20
6
10
YA 17814

16
DAVE
YA17817

15
DAVE
7
8
YA17816

LEGEND

● Diamond drill hole_1979

Trench_1979

CANADA TUNGSTEN MINING CORP. LTD.

DUBLIN GULCH PROJECT
YUKON TERRITORY_1979

LOCATION MAP

| | |
|---|---|
| SCALE: IN. 1:10000 | NTS No. 106-D-4 |
| DATE 3.1.1980 | MAP No. |
| DRAWN BY W.G. | To accompany report. |
| REVISED BY | |

YARDAGE OF MATERIALS REMOVED BY D-7 CAT
FROM TRENCHES AND DIAMOND DRILL SITES
DUBLIN GULCH - 1979

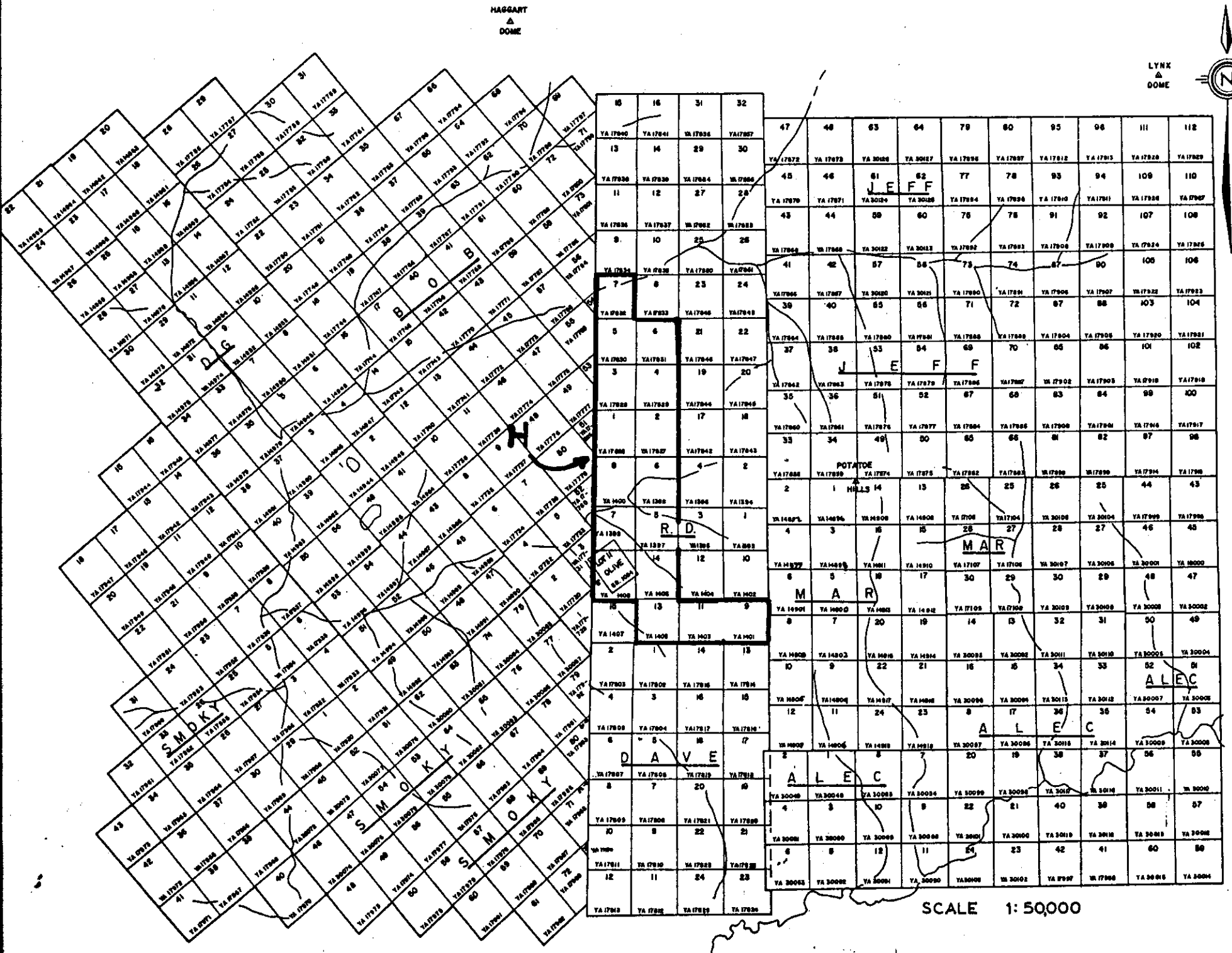
| TRENCH NO. | CLAIM LOCATION | DIMENSION (m) DISTANCE | WIDTH | VERTICAL DISTANCE | VOLUME $m^3$ | $yd^3$ | OPERATOR | DATE |
|---|---|---|---|---|---|---|---|---|
| 1 | MAR 8 | 52.8 | 4.2 | 0.83 | 184.1 | 241.1 | L. Haner | June 10/79 |
| 2 | MAR 8 | 161.0 | 4.1 | 0.83 | 548.0 | 718.0 | L. & B. Haner | June 10 & 30/79 |
| 3 | MAR 8 | 57.0 | 3.63 | 0.50 | 103.0 | 135.0 | L. & B. Haner | June 10 & 30/79 |
| 4 | DAVE 13 | 167.0 | 4.1 | 1.22 | 835.0 | 1094.0 | L. & B. Haner | June 10 & 29/79 |
| 5 | DAVE 13 | 86.0 | 4.1 | 0.9 | 317.0 | 415.0 | B. Haner | June 30/79 |
| 6 | DAVE 13 | 189.0 | 13.0 | 0.3 | 737.0 | 965.0 | L. & B. Haner | June 10 & 30/79 |
| 7 | DAVE 15 | 272.0 | 4.1 | 0.6 | 669.0 | 876.0 | L. & B. Haner | June 10 & 30/79 |
| 8 | DAVE 15 | 305.0 | 5.6 | 0.5 | 854.0 | 1119.0 | L. & B. Haner | June 10 & 30/79 |
| 9 | R.D. 10 | - | - | - | 324.4 | 425.0 | B. Haner | August 22/79 |
| 10 | DAVE 13 | - | - | - | 324.4 | 425.0 | B. Haner | August 22/79 |
| Sub-total | | | | | 4896.0 | 6413.2 | | |
| DRILL SITE | | | | | | | | |
| 1 | R.D. 9 | | | | 94.4 | 123.66 | B. Haner | June 28/79 |
| 2 | DAVE 13 | | | | 110.7 | 145.0 | " | " |
| 3 | MAR 6 | | | | 269.5 | 353.0 | " | June 29/79 |
| 4 | MAR 3 | | | | 117.0 | 153.3 | L. Haner | June 10/79 |
| 5 | MAR 5 | | | | 137.2 | 179.8 | " | " |
| 6 | R.D. 9 | | | | 119.1 | 156.0 | " | August 6/79 |
| 7 | R.D. 9 | | | | 119.1 | 156.0 | B. Haner | August 7/79 |
| 8 | R.D. 10 | | | | 119.1 | 156.0 | " | " |
| 9 | R.D. 10 | | | | 119.1 | 156.0 | " | " |
| 10 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 11 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 12 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 13 | R.D. 9 | | | | 119.1 | 156.0 | " | August 27/79 |
| 14 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 15 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 16 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 17 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 18 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 19 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 20 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 21 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| Sub-total | | | | | 2634.2 | 3450.8 | | |
| GRAND TOTAL | | | | | 7530.2 | 9864.0 | | |

Schedule of Claim Renewals and Work
to Accompany Form C - Application for
a Certificate of Work and Grouping Certificate

GROUP - H

Present Expiry Date: Oct.1.1982

| Claim No. | Grant No | Renew To | Claim Yrs. | Filing Fees $ | Assessment Requirement $ |
|---|---|---|---|---|---|
| R.D. 5 | YA 1397 | Oct.1.1986 | 4 | 20 | 400 |
| R.D. 6 | YA 1398 | Oct.1.1986 | 4 | 20 | 400 |
| R.D. 7 | YA 1399 | Oct.1.1986 | 4 | 20 | 400 |
| R.D. 8 | YA 1400 | Oct.1.1986 | 4 | 20 | 400 |
| R.D. 9 | YA 1401 | Oct.1.1986 | 4 | 20 | 400 |
| R.D. 11 | YA 1403 | Oct.1.1986 | 4 | 20 | 400 |
| R.D. 13 | YA 1405 | Oct.1.1986 | 4 | 20 | 400 |
| R.D. 14 | YA 1406 | Oct.1.1986 | 4 | 20 | 400 |
| R.D. 16 | YA 1408 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 1 | YA 17826 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 2 | YA 17827 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 3 | YA 17828 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 4 | YA 17829 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 5 | YA 17830 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 6 | YA 17831 | Oct.1.1986 | 4 | 20 | 400 |
| Jeff 7 | YA 17832 | Oct.1.1986 | 4 | 20 | 400 |
| | | | | $320 | $6400 |


HAGGART DOME
LYNX DOME
N
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S M O K Y
S M O K Y
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R. D.
D A V E
J E F F
J E F F
M A R
M A R
A L E C
A L E C
A L E C
POTATOE HILLS
SCALE 1: 50,000




3
MAR
79-4
YA14899

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R.D.
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YA 14902
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MAR
YA 14902

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MAR
79-5
YA 14901

79-11
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79-10
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79-21
YA14901
79-16

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YA 14904

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DAVE
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YA 17814

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DAVE
YA17817

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DAVE
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7
YA17816

LEGEND

● Diamond drill hole_1979

Trench_1979

CANADA TUNGSTEN MINING CORP. LTD.

DUBLIN GULCH PROJECT
YUKON TERRITORY_1979

LOCATION MAP

| | |
|---|---|
| SCALE: IN: 1:10000 | NTS No. 106-D-4 |
| DATE: 3.1.1980 | MAP No. |
| DRAWN BY W.G. | To accompany report: |
| REVISED BY | |

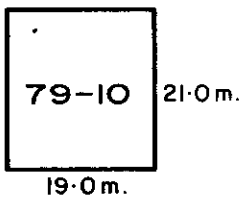
# DUBLIN GULCH PROJECT
## YUKON TERRITORY - 1979
## DRILL SITE 79-6, 79-10, 79-13
## CLAIM R.D. 9

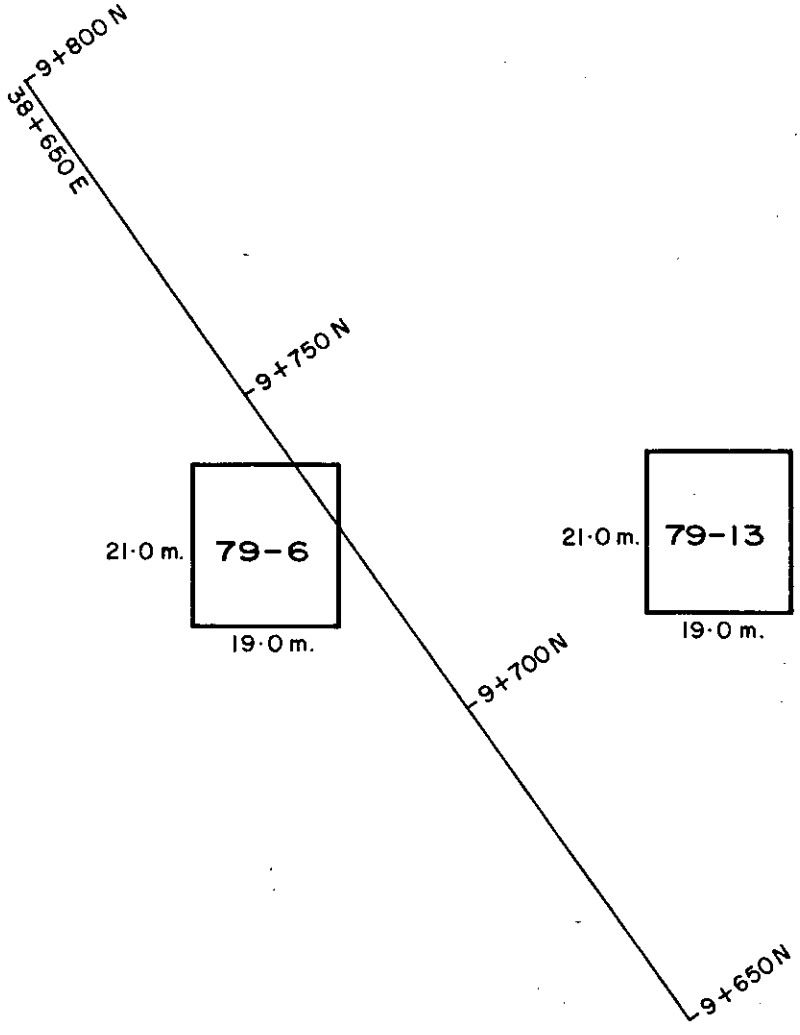
SCALE 1:1000

Fig No. 17

REFER TO GEOLOGY MAP NO. 1F




DRAWN BY : EDCO LTD.




9+700N

38+650E

9+650N

79-14 21·0m.

19·0m.

9+600N

# DUBLIN GULCH PROJECT

YUKON TERRITORY - 1979

DRILL SITE 79-7, 79-14, 79-15, 79-16, 79-21

CLAIM R.D. 9

SCALE 1:1000

Fig No. 18

REFER TO GEOLOGY MAP NO. 1F

79-7 21·0m.

19·0m.

9+650N

38+500E

79-15 21·0m.

19·0m.

9+600N

79-1 21·0m.

19·0m.

79-16 21·0m.

19·0m.

9+550N

9+500N

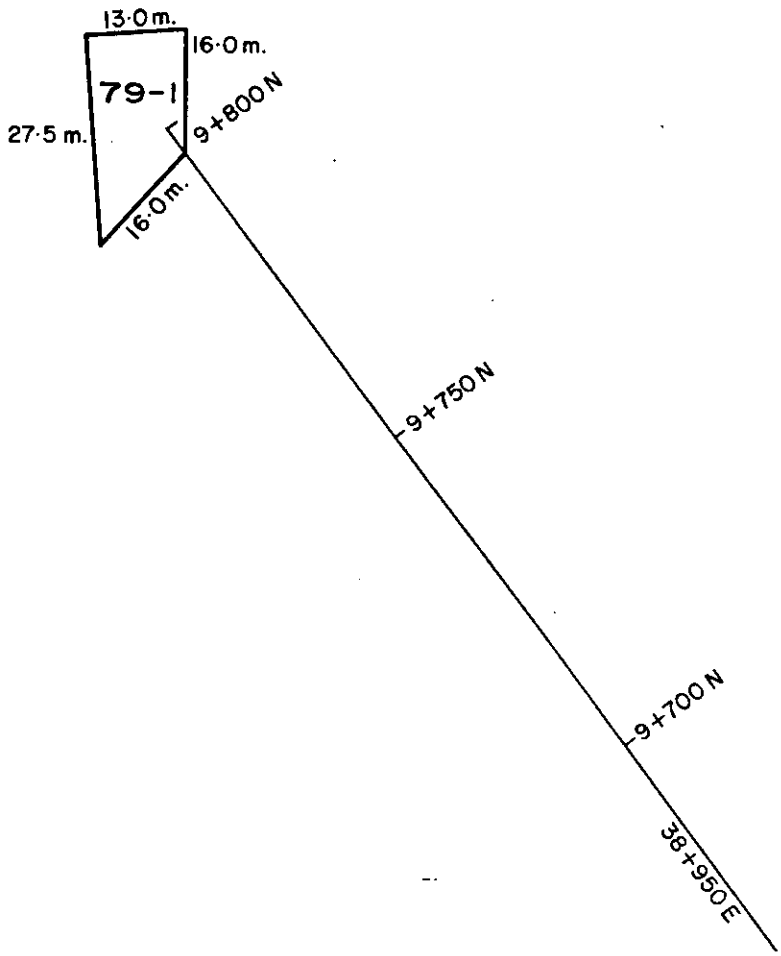
DRAWN BY: EDCO LTD.

# DUBLIN GULCH PROJECT
## YUKON TERRITORY - 1979
## DRILL SITE 79-1
## CLAIM R.D. 9

SCALE 1:1000

Fig No. 20

REFER TO GEOLOGY MAP NO. 1F




DRAWN BY: EDCO LTD.

# DUBLIN GULCH PROJECT
YUKON TERRITORY - 1979

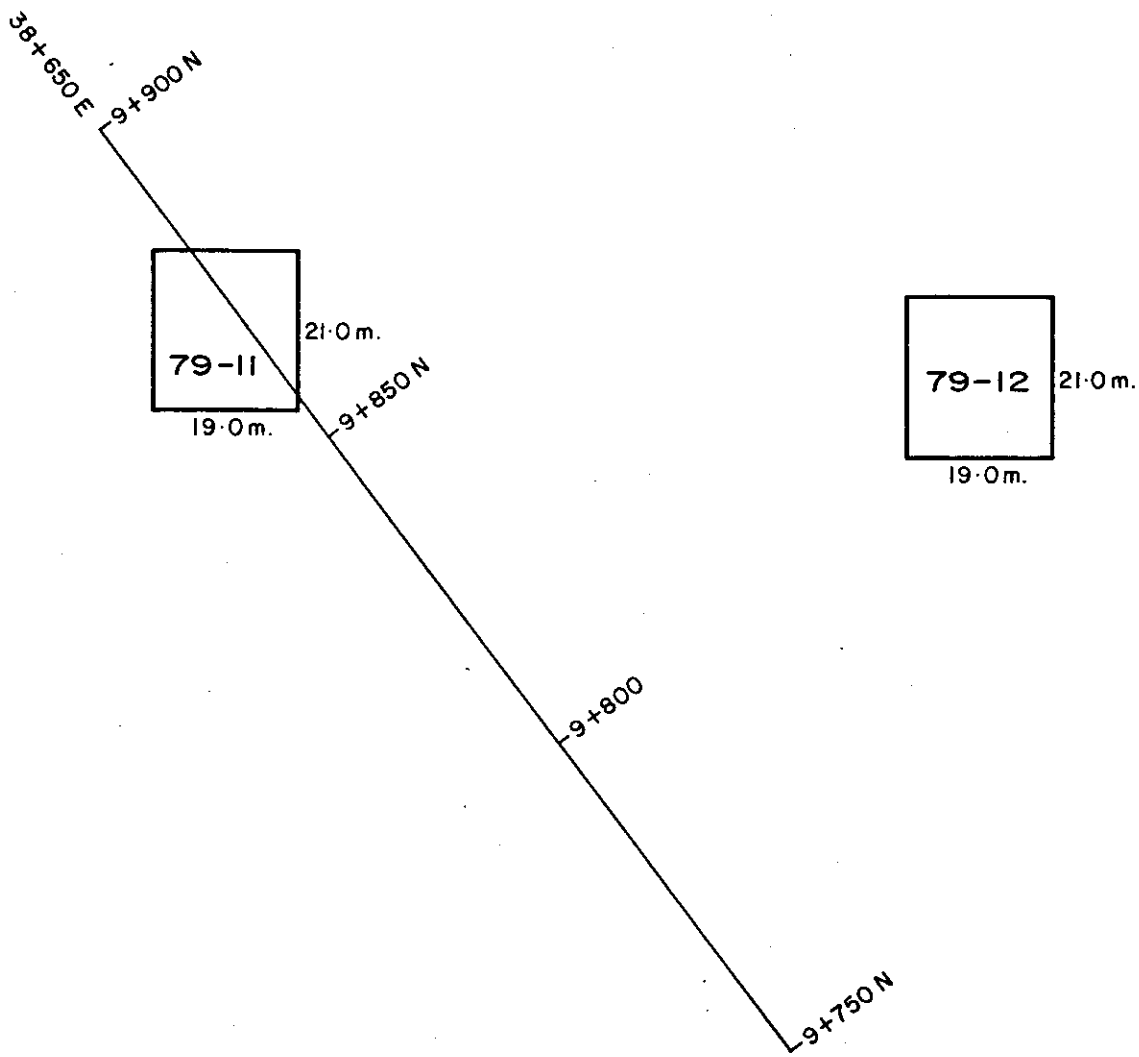
## DRILL SITE 79-11, 79-12

## CLAIM R.D. 9

SCALE 1:1000

**Fig No. 21**

REFER TO GEOLOGY MAP NO. 1 F




DRAWN BY: EDCO LTD.

YARDAGE OF MATERIALS REMOVED BY D-7 CAT
FROM TRENCHES AND DIAMOND DRILL SITES
DUBLIN GULCH - 1979

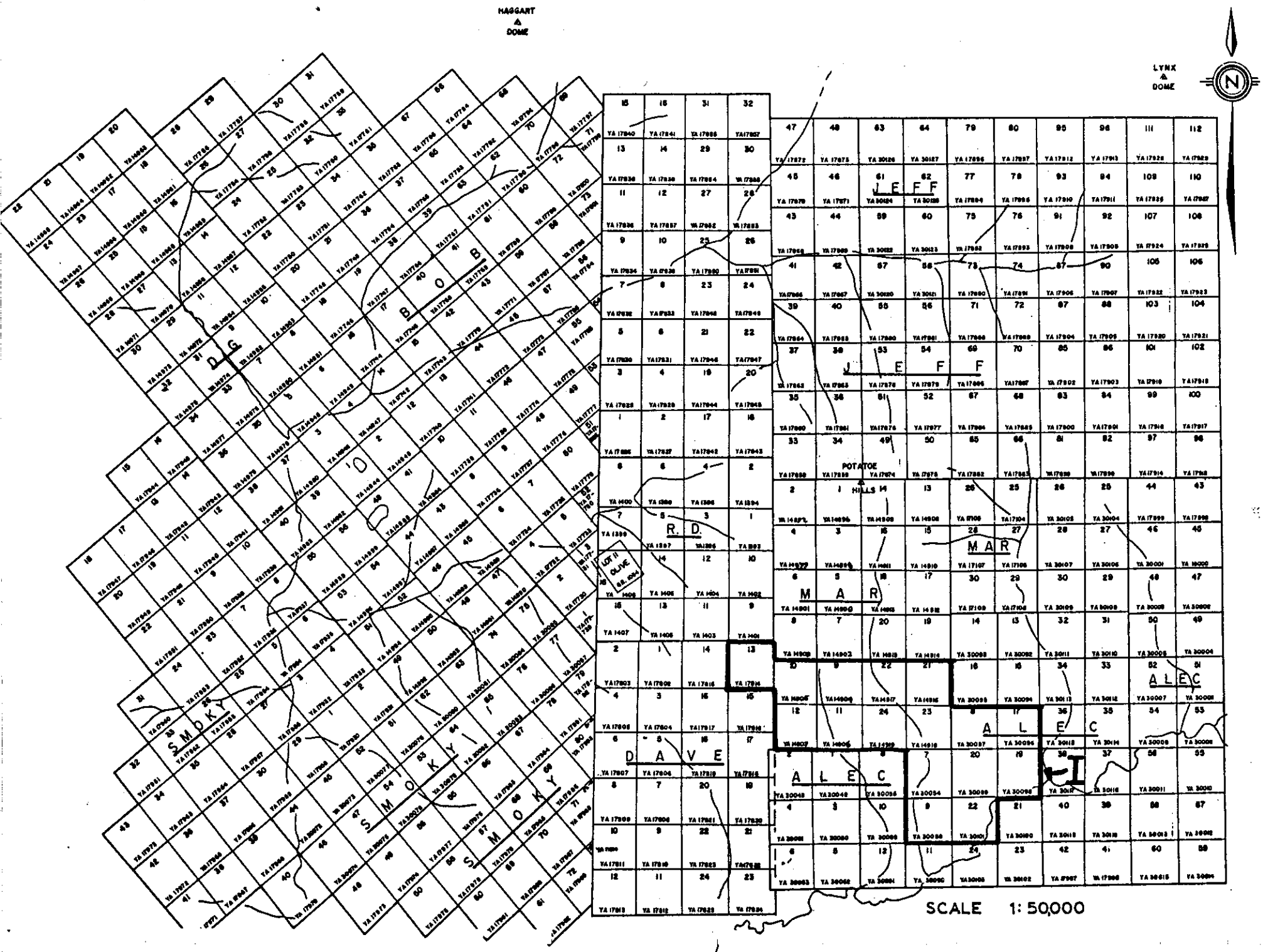
| TRENCH NO. | CLAIM LOCATION | DIMENSION (m) DISTANCE | WIDTH | VERTICAL DISTANCE | VOLUME $m^3$ | $yd^3$ | OPERATOR | DATE |
|---|---|---|---|---|---|---|---|---|
| 1 | MAR 8 | 52.8 | 4.2 | 0.83 | 184.1 | 241.1 | L. Haner | June 10/79 |
| 2 | MAR 8 | 161.0 | 4.1 | 0.83 | 548.0 | 718.0 | L. & B. Haner | June 10 & 30/79 |
| 3 | MAR 8 | 57.0 | 3.63 | 0.50 | 103.0 | 135.0 | L. & B. Haner | June 10 & 30/79 |
| 4 | DAVE 13 | 167.0 | 4.1 | 1.22 | 835.0 | 1094.0 | L. & B. Haner | June 10 & 29/79 |
| 5 | DAVE 13 | 86.0 | 4.1 | 0.9 | 317.0 | 415.0 | B. Haner | June 30/79 |
| 6 | DAVE 13 | 189.0 | 13.0 | 0.3 | 737.0 | 965.0 | L. & B. Haner | June 10 & 30/79 |
| 7 | DAVE 15 | 272.0 | 4.1 | 0.6 | 669.0 | 876.0 | L. & B. Haner | June 10 & 30/79 |
| 8 | DAVE 15 | 305.0 | 5.6 | 0.5 | 854.0 | 1119.0 | L. & B. Haner | June 10 & 30/79 |
| 9 | R.D. 10 | - | - | - | 324.4 | 425.0 | B. Haner | August 22/79 |
| 10 | DAVE 13 | - | - | - | 324.4 | 425.0 | B. Haner | August 22/79 |
| Sub-total | | | | | 4896.0 | 6413.2 | | |
| DRILL SITE | | | | | | | | |
| 1 | R.D. 9 | | | | 94.4 | 123.66 | B. Haner | June 28/79 |
| 2 | DAVE 13 | | | | 110.7 | 145.0 | " | " |
| 3 | MAR 6 | | | | 269.5 | 353.0 | " | June 29/79 |
| 4 | MAR 3 | | | | 117.0 | 153.3 | L. Haner | June 10/79 |
| 5 | MAR 5 | | | | 137.2 | 179.8 | " | " |
| 6 | R.D. 9 | | | | 119.1 | 156.0 | " | August 6/79 |
| 7 | R.D. 9 | | | | 119.1 | 156.0 | B. Haner | August 7/79 |
| 8 | R.D. 10 | | | | 119.1 | 156.0 | " | " |
| 9 | R.D. 10 | | | | 119.1 | 156.0 | " | " |
| 10 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 11 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 12 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 13 | R.D. 9 | | | | 119.1 | 156.0 | " | August 27/79 |
| 14 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 15 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 16 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 17 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 18 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 19 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 20 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 21 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| Sub-total | | | | | 2634.2 | 3450.8 | | |
| GRAND TOTAL | | | | | 7530.2 | 9864.0 | | |

Schedule of Claim Renewals and Work
to Accompany Form C - Application for
a Certificate of Work and Grouping Certificate

GROUP - I

Present Expiry Date: Oct.1.1982

| Claim No. | Grant No. | Renew To | Claim Yrs. | Filing Fees $ | Assessment Requirement $ |
|---|---|---|---|---|---|
| Dave 13 | YA 17814 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 9 | YA 14904 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 10 | YA 14905 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 11 | YA 14906 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 12 | YA 14907 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 21 | YA 14916 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 22 | YA 14917 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 23 | YA 14918 | Oct.1.1986 | 4 | 20 | 400 |
| Mar 24 | YA 14919 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 7 | YA 30054 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 9 | YA 30088 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 17 | YA 30096 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 18 | YA 30097 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 19 | YA 30098 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 20 | YA 30099 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 22 | YA 30101 | Oct.1.1986 | 4 | 20 | 400 |
| | | | | $320 | $6400 |


HAGGART DOME
LYNX DOME
N
D G
B O B
S M O K Y
S M O K Y
S M O K Y
R. D.
D A V E
J E F F
J E F F
POTATOE HILLS
M A R
M A R
A L E C
A L E C
A L E C
LOT 11 OLIVE
SCALE 1: 50,000




3
MAR
79-4
YA14899

10
R.D.
9
79-8
YA 1402
79-9

6
79-3
MAR
YA 14902

5
MAR
79-5
YA 14901

79-11 79-12
9
79-6
79-10 R.D. 79-13
79-14
79-7 79-1 79-15
79-21
YA 1401 79-16

8
1
2
3
MAR
YA 14904

79-2 79-17
4
13
5
79-18
79-19
DAVE
79-20
6
10
YA 17814

16
DAVE
YA17817

15
DAVE
7
8
YA17816

LEGEND

● Diamond drill hole_1979

Trench_1979

CANADA TUNGSTEN MINING CORP. LTD.

DUBLIN GULCH PROJECT
YUKON TERRITORY_1979

LOCATION MAP

| | |
|---|---|
| SCALE: IN: 1:10000 | NTS No. 106-D-4 |
| DATE: 3.1.1980 | MAP No. |
| DRAWN BY: W.G. | To accompany report: |
| REVISED BY: | |

YARDAGE OF MATERIALS REMOVED BY D-7 CAT
FROM TRENCHES AND DIAMOND DRILL SITES
DUBLIN GULCH - 1979

| TRENCH NO. | CLAIM LOCATION | DIMENSION (m) DISTANCE | WIDTH | VERTICAL DISTANCE | VOLUME $m^3$ | $yd^3$ | OPERATOR | DATE |
|---|---|---|---|---|---|---|---|---|
| 1 | MAR 8 | 52.8 | 4.2 | 0.83 | 184.1 | 241.1 | L. Haner | June 10/79 |
| 2 | MAR 8 | 161.0 | 4.1 | 0.83 | 548.0 | 718.0 | L. & B. Haner | June 10 & 30/79 |
| 3 | MAR 8 | 57.0 | 3.63 | 0.50 | 103.0 | 135.0 | L. & B. Haner | June 10 & 30/79 |
| 4 | DAVE 13 | 167.0 | 4.1 | 1.22 | 835.0 | 1094.0 | L. & B. Haner | June 10 & 29/79 |
| 5 | DAVE 13 | 86.0 | 4.1 | 0.9 | 317.0 | 415.0 | B. Haner | June 30/79 |
| 6 | DAVE 13 | 189.0 | 13.0 | 0.3 | 737.0 | 965.0 | L. & B. Haner | June 10 & 30/79 |
| 7 | DAVE 15 | 272.0 | 4.1 | 0.6 | 669.0 | 876.0 | L. & B. Haner | June 10 & 30/79 |
| 8 | DAVE 15 | 305.0 | 5.6 | 0.5 | 854.0 | 1119.0 | L. & B. Haner | June 10 & 30/79 |
| 9 | R.D. 10 | - | - | - | 324.4 | 425.0 | B. Haner | August 22/79 |
| 10 | DAVE 13 | - | - | - | 324.4 | 425.0 | B. Haner | August 22/79 |
| Sub-total | | | | | 4896.0 | 6413.2 | | |
| DRILL SITE | | | | | | | | |
| 1 | R.D. 9 | | | | 94.4 | 123.66 | B. Haner | June 28/79 |
| 2 | DAVE 13 | | | | 110.7 | 145.0 | " | " |
| 3 | MAR 6 | | | | 269.5 | 353.0 | " | June 29/79 |
| 4 | MAR 3 | | | | 117.0 | 153.3 | L. Haner | June 10/79 |
| 5 | MAR 5 | | | | 137.2 | 179.8 | " | " |
| 6 | R.D. 9 | | | | 119.1 | 156.0 | " | August 6/79 |
| 7 | R.D. 9 | | | | 119.1 | 156.0 | B. Haner | August 7/79 |
| 8 | R.D. 10 | | | | 119.1 | 156.0 | " | " |
| 9 | R.D. 10 | | | | 119.1 | 156.0 | " | " |
| 10 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 11 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 12 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 13 | R.D. 9 | | | | 119.1 | 156.0 | " | August 27/79 |
| 14 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 15 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 16 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 17 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 18 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 19 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 20 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 21 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| Sub-total | | | | | 2634.2 | 3450.8 | | |
| GRAND TOTAL | | | | | 7530.2 | 9864.0 | | |

Schedule of Claim Renewals and Work
to Accompany Form C - Application for
a Certificate of Work and Grouping Certificate

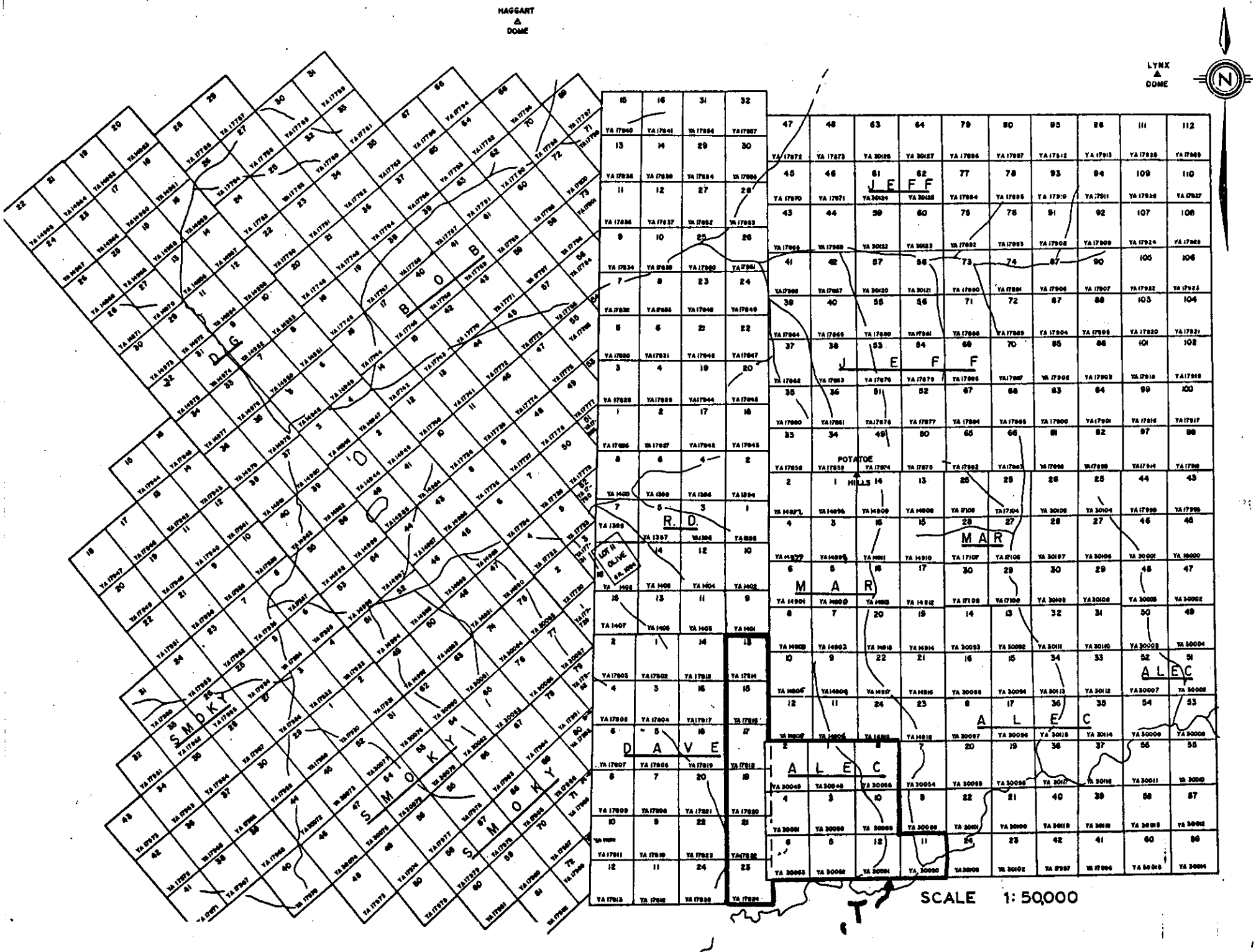
GROUP - J

Present Expiry Date: Oct.1.1982

| Claim No. | Grant No. | Renew To | Claim Yrs. | Filing Fees $ | Assessment Requirement $ |
|---|---|---|---|---|---|
| Dave 13 | YA 17814 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 15 | YA 17816 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 17 | YA 17818 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 19 | YA 17820 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 21 | YA 17822 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 23 | YA 17824 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 1 | YA 30048 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 2 | YA 30049 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 3 | YA 30050 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 4 | YA 30051 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 5 | YA 30052 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 6 | YA 30053 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 8 | YA 30055 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 10 | YA 30089 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 11 | YA 30090 | Oct.1.1986 | 4 | 20 | 400 |
| Alec 12 | YA 30091 | Oct.1.1986 | 4 | 20 | 400 |
| | | | | $320 | $6400 |

YARDAGE OF MATERIALS REMOVED BY D-7 CAT
FROM TRENCHES AND DIAMOND DRILL SITES
DUBLIN GULCH - 1979

| TRENCH NO. | CLAIM LOCATION | DIMENSION (m) DISTANCE | WIDTH | VERTICAL DISTANCE | VOLUME $m^3$ | $yd^3$ | OPERATOR | DATE |
|---|---|---|---|---|---|---|---|---|
| 1 | MAR 8 | 52.8 | 4.2 | 0.83 | 184.1 | 241.1 | L. Haner | June 10/79 |
| 2 | MAR 8 | 161.0 | 4.1 | 0.83 | 548.0 | 718.0 | L. & B. Haner | June 10 & 30/79 |
| 3 | MAR 8 | 57.0 | 3.63 | 0.50 | 103.0 | 135.0 | L. & B. Haner | June 10 & 30/79 |
| 4 | DAVE 13 | 167.0 | 4.1 | 1.22 | 835.0 | 1094.0 | L. & B. Haner | June 10 & 29/79 |
| 5 | DAVE 13 | 86.0 | 4.1 | 0.9 | 317.0 | 415.0 | B. Haner | June 30/79 |
| 6 | DAVE 13 | 189.0 | 13.0 | 0.3 | 737.0 | 965.0 | L. & B. Haner | June 10 & 30/79 |
| 7 | DAVE 15 | 272.0 | 4.1 | 0.6 | 669.0 | 876.0 | L. & B. Haner | June 10 & 30/79 |
| 8 | DAVE 15 | 305.0 | 5.6 | 0.5 | 854.0 | 1119.0 | L. & B. Haner | June 10 & 30/79 |
| 9 | R.D. 10 | - | - | - | 324.4 | 425.0 | B. Haner | August 22/79 |
| 10 | DAVE 13 | - | - | - | 324.4 | 425.0 | B. Haner | August 22/79 |
| Sub-total | | | | | 4896.0 | 6413.2 | | |
| DRILL SITE | | | | | | | | |
| 1 | R.D. 9 | | | | 94.4 | 123.66 | B. Haner | June 28/79 |
| 2 | DAVE 13 | | | | 110.7 | 145.0 | " | " |
| 3 | MAR 6 | | | | 269.5 | 353.0 | " | June 29/79 |
| 4 | MAR 3 | | | | 117.0 | 153.3 | L. Haner | June 10/79 |
| 5 | MAR 5 | | | | 137.2 | 179.8 | " | " |
| 6 | R.D. 9 | | | | 119.1 | 156.0 | " | August 6/79 |
| 7 | R.D. 9 | | | | 119.1 | 156.0 | B. Haner | August 7/79 |
| 8 | R.D. 10 | | | | 119.1 | 156.0 | " | " |
| 9 | R.D. 10 | | | | 119.1 | 156.0 | " | " |
| 10 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 11 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 12 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 13 | R.D. 9 | | | | 119.1 | 156.0 | " | August 27/79 |
| 14 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 15 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 16 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 17 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 18 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 19 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 20 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 21 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| Sub-total | | | | | 2634.2 | 3450.8 | | |
| GRAND TOTAL | | | | | 7530.2 | 9864.0 | | |


HAGGART DOME
LYNX DOME
N
D G
B O B
S M O K Y
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R. D.
LOT 11 OLIVE
D A V E
J E F F
J E F F
POTATOE HILLS
M A R
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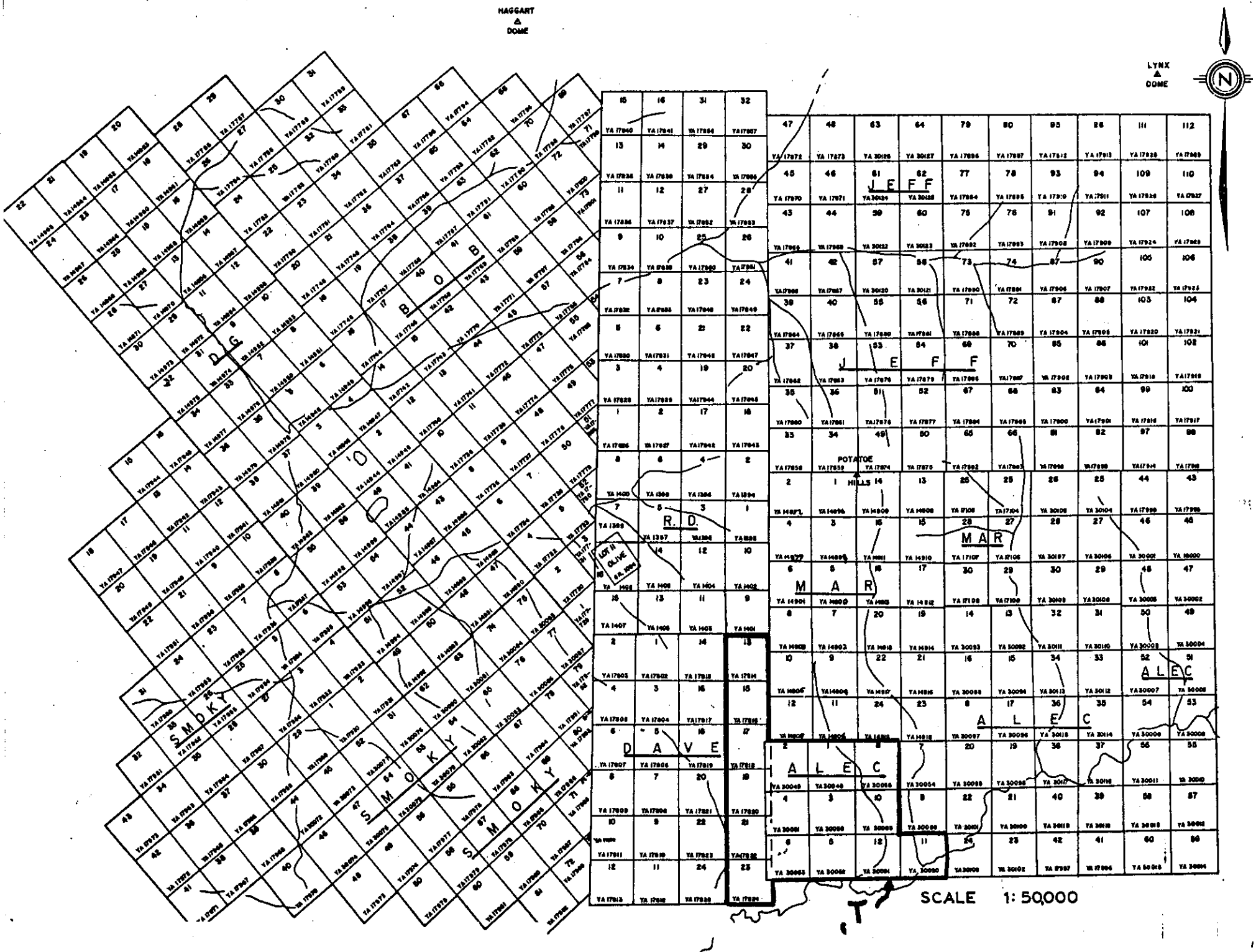
SCALE 1: 50,000


HAGGART DOME
LYNX DOME
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D G
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S M O K Y
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S M O K Y
R. D.
LOT 11 OLIVE
D A V E
J E F F
J E F F
POTATOE HILLS
M A R
M A R
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A L E C
A L E C
SCALE 1: 50,000




3
MAR
79-4
YA14899

10
R.D.
9
79-8
79-9
YA 14027

6
79-3
MAR
YA 14902

5
MAR
79-5
YA 14901

79-11
79-12
9
79-6
79-10
R.D.
79-13
79-14
79-7
79-1
79-15
79-21
YA 14017
79-16

8
1
2
3
MAR
YA 14904

79-2
79-17
4
13
5
79-18
79-19
DAVE
79-20
6
10
YA 17814

16
DAVE
YA17817

15
DAVE
7
8
YA17816

LEGEND

● Diamond drill hole_1979

Trench_1979

CANADA TUNGSTEN MINING CORP. LTD.

DUBLIN GULCH PROJECT
YUKON TERRITORY_1979

LOCATION MAP

| | |
|---|---|
| SCALE IN: 1:10000 | NTS No. 106-D-4 |
| DATE: 3.1.1980 | MAP No. |
| DRAWN BY: W.G. | To accompany report. |
| REVISED BY: | |

# DUBLIN GULCH PROJECT
YUKON TERRITORY - 1979

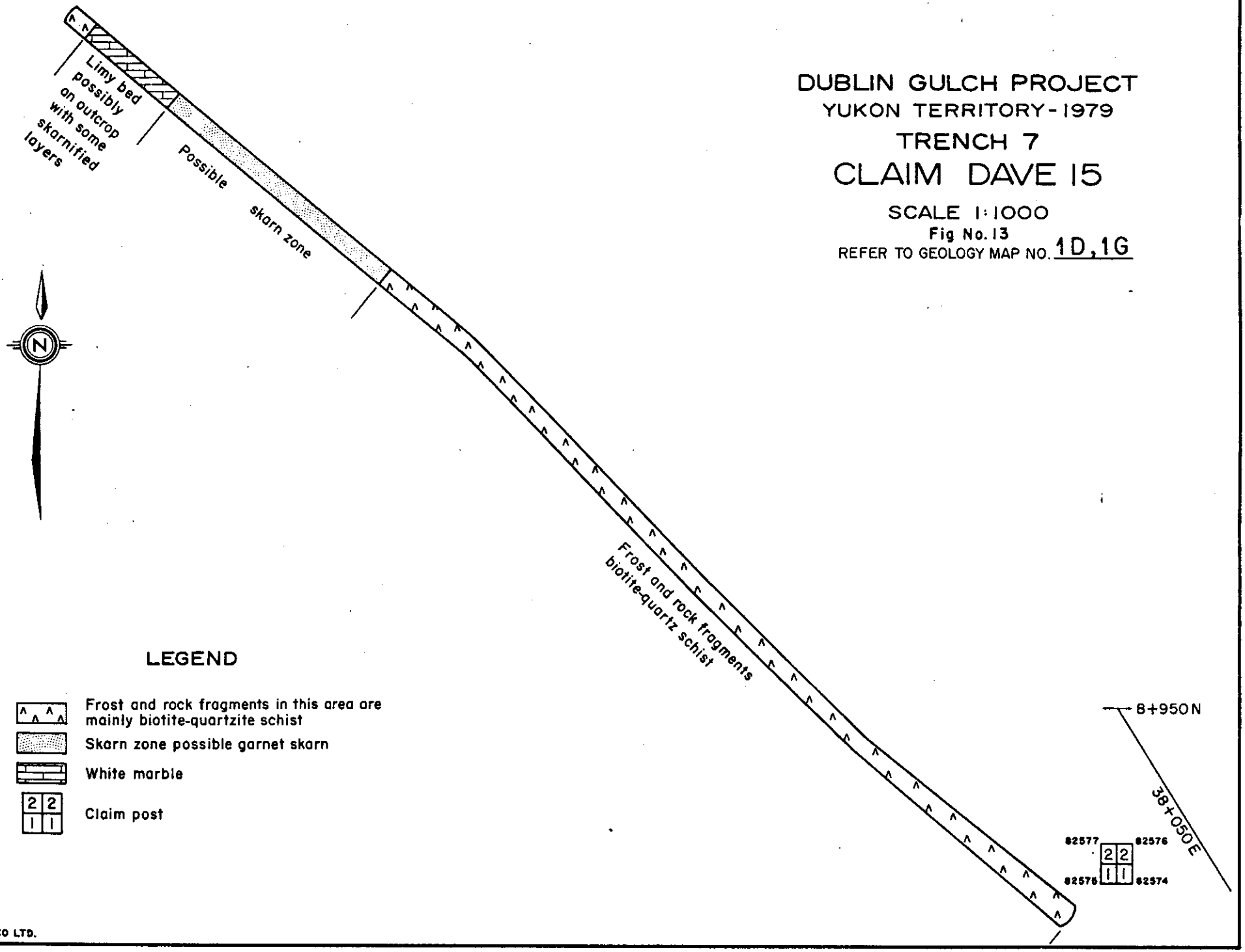
## TRENCH 7

## CLAIM DAVE 15

SCALE 1:1000

Fig No. 13

REFER TO GEOLOGY MAP NO. 1D, 1G




## LEGEND

- Frost and rock fragments in this area are mainly biotite-quartzite schist
- Skarn zone possible garnet skarn
- White marble
- Claim post

DRAWN BY: EDCO LTD.

# DUBLIN GULCH PROJECT
YUKON TERRITORY - 1979

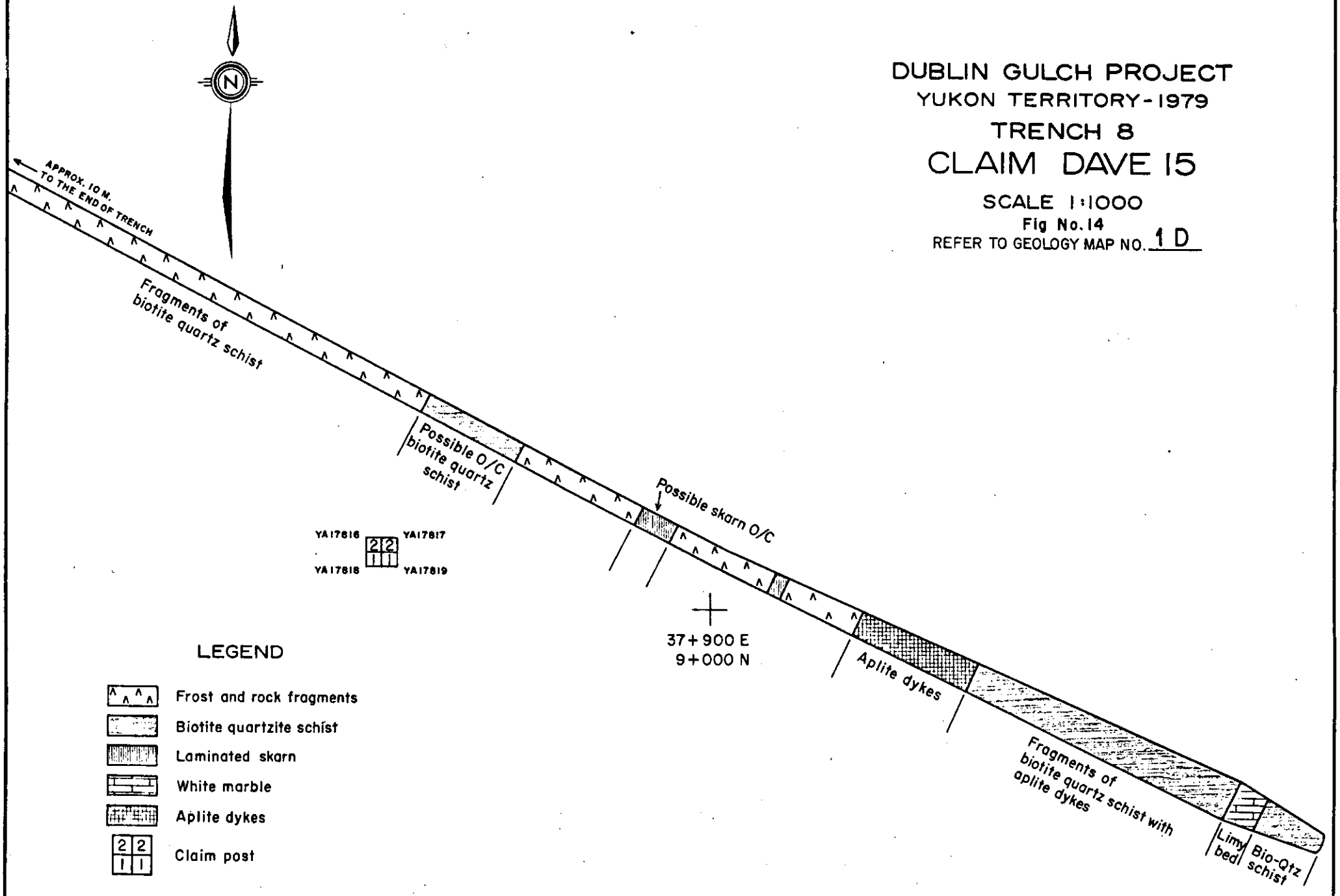
## TRENCH 8

## CLAIM DAVE 15

SCALE 1:1000

Fig No. 14

REFER TO GEOLOGY MAP NO. 1 D




DRAWN BY : EDCO LTD.

YARDAGE OF MATERIALS REMOVED BY D-7 CAT
FROM TRENCHES AND DIAMOND DRILL SITES
DUBLIN GULCH - 1979

| TRENCH NO. | CLAIM LOCATION | DIMENSION (m) DISTANCE | WIDTH | VERTICAL DISTANCE | VOLUME $m^3$ | VOLUME $yd^3$ | OPERATOR | DATE |
|---|---|---|---|---|---|---|---|---|
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| 6 | DAVE 13 | 189.0 | 13.0 | 0.3 | 737.0 | 965.0 | L. & B. Haner | June 10 & 30/79 |
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| Sub-total | | | | | 4896.0 | 6413.2 | | |
| DRILL SITE | | | | | | | | |
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| 2 | DAVE 13 | | | | 110.7 | 145.0 | " | " |
| 3 | MAR 6 | | | | 269.5 | 353.0 | " | June 29/79 |
| 4 | MAR 3 | | | | 117.0 | 153.3 | L. Haner | June 10/79 |
| 5 | MAR 5 | | | | 137.2 | 179.8 | " | " |
| 6 | R.D. 9 | | | | 119.1 | 156.0 | " | August 6/79 |
| 7 | R.D. 9 | | | | 119.1 | 156.0 | B. Haner | August 7/79 |
| 8 | R.D. 10 | | | | 119.1 | 156.0 | " | " |
| 9 | R.D. 10 | | | | 119.1 | 156.0 | " | " |
| 10 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 11 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 12 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 13 | R.D. 9 | | | | 119.1 | 156.0 | " | August 27/79 |
| 14 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 15 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 16 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 17 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
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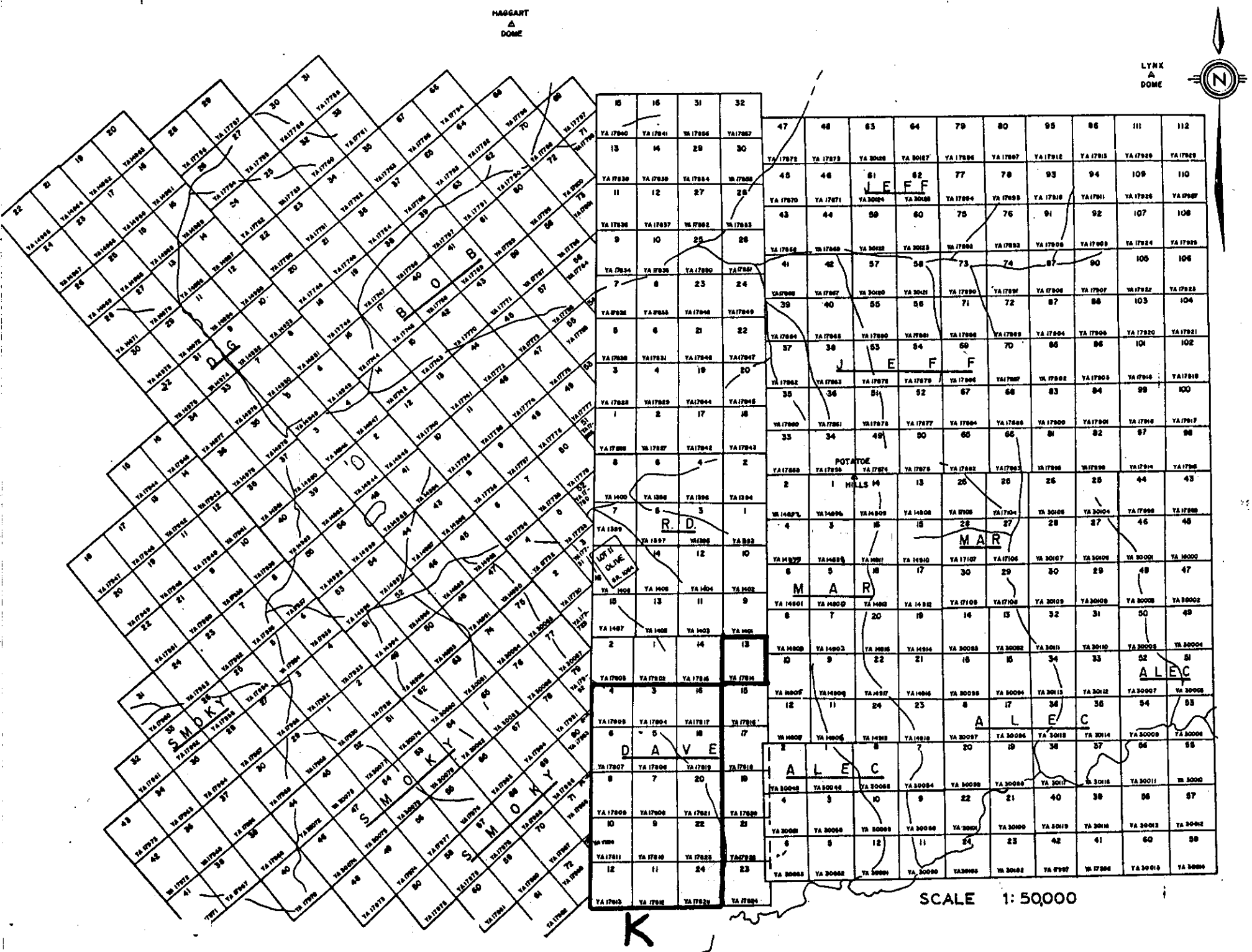
| 21 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| Sub-total | | | | | 2634.2 | 3450.8 | | |
| GRAND TOTAL | | | | | 7530.2 | 9864.0 | | |

Schedule of Claim Renewals and Work
to Accompany Form C - Application for
a Certificate of Work and Grouping Certificate

GROUP - K

Present Expiry Date: Oct.1.1982

| Claim No. | Grant No. | Renew To | Claims Yrs. | Filing Fees $ | Assessment Requirement $ |
|---|---|---|---|---|---|
| Dave 3 | YA 17804 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 4 | YA 17805 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 5 | YA 17806 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 6 | YA 17807 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 7 | YA 17808 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 8 | YA 17809 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 9 | YA 17810 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 10 | YA 17811 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 11 | YA 17812 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 12 | YA 17813 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 13 | YA 17814 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 16 | YA 17817 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 18 | YA 17819 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 20 | YA 17821 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 22 | YA 17823 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 24 | YA 17825 | Oct.1.1986 | 4 | 20 | 400 |
| | | | | $320 | $6400 |


HAGGART
DOME
LYNX
DOME
N
BOB
DG
SMOKY
SMOKY
SMOKY
R. D.
LOT 11 OLIVE
DAVE
JEFF
JEFF
POTATOE
HILLS
MAR
MAR
ALEC
ALEC
ALEC
SCALE 1: 50,000
K




3
MAR
79-4
YA14899

10
R.D.
9
79-8
YA 1402
79-9

6
79-3
MAR
YA 14902

5
MAR
79-5
YA 14901

79-11 79-12
9
79-6
79-10 R.D. 79-13
79-14
79-7 79-1 79-15
79-21
YA1401 79-16

8
1
2
3
MAR
YA 14904

79-2 79-17
13
4
5 79-18
79-19
DAVE
79-20
6
10
YA 17814

16
DAVE
YA17817

15
DAVE
7
8
YA17816

LEGEND

● Diamond drill hole_1979

Trench_1979

CANADA TUNGSTEN MINING CORP. LTD.

DUBLIN GULCH PROJECT
YUKON TERRITORY_1979

LOCATION MAP

| | |
|---|---|
| SCALE: IN. 1:10000 | NTS No. 106-D-4 |
| DATE: 3.1.1980 | MAP No. |
| DRAWN BY: W.G. | To accompany report. |
| REVISED BY: | |

YARDAGE OF MATERIALS REMOVED BY D-7 CAT
FROM TRENCHES AND DIAMOND DRILL SITES
DUBLIN GULCH - 1979

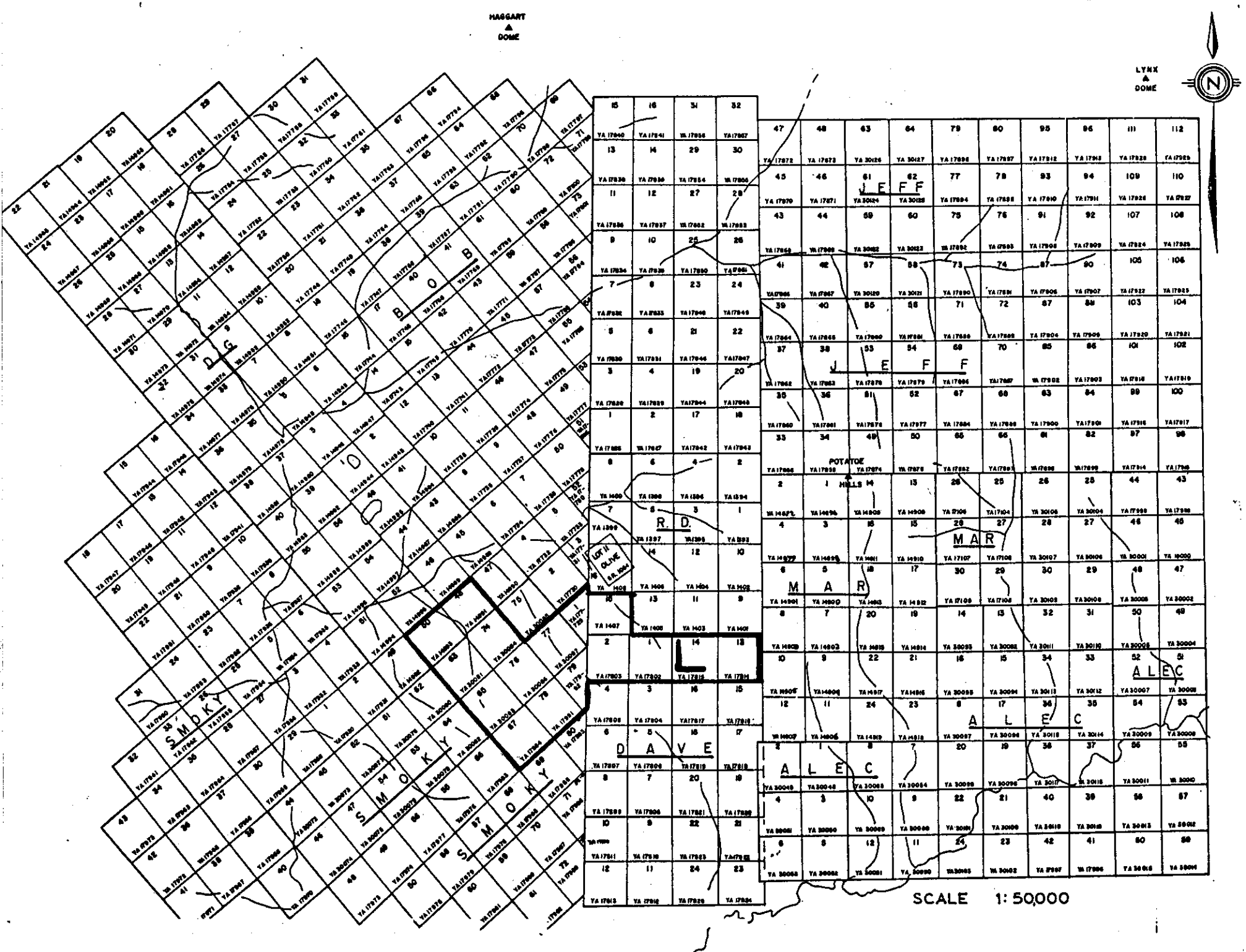
| TRENCH NO. | CLAIM LOCATION | DIMENSION (m) DISTANCE | WIDTH | VERTICAL DISTANCE | VOLUME $m^3$ | $yd^3$ | OPERATOR | DATE |
|---|---|---|---|---|---|---|---|---|
| 1 | MAR 8 | 52.8 | 4.2 | 0.83 | 184.1 | 241.1 | L. Haner | June 10/79 |
| 2 | MAR 8 | 161.0 | 4.1 | 0.83 | 548.0 | 718.0 | L. & B. Haner | June 10 & 30/79 |
| 3 | MAR 8 | 57.0 | 3.63 | 0.50 | 103.0 | 135.0 | L. & B. Haner | June 10 & 30/79 |
| 4 | DAVE 13 | 167.0 | 4.1 | 1.22 | 835.0 | 1094.0 | L. & B. Haner | June 10 & 29/79 |
| 5 | DAVE 13 | 86.0 | 4.1 | 0.9 | 317.0 | 415.0 | B. Haner | June 30/79 |
| 6 | DAVE 13 | 189.0 | 13.0 | 0.3 | 737.0 | 965.0 | L. & B. Haner | June 10 & 30/79 |
| 7 | DAVE 15 | 272.0 | 4.1 | 0.6 | 669.0 | 876.0 | L. & B. Haner | June 10 & 30/79 |
| 8 | DAVE 15 | 305.0 | 5.6 | 0.5 | 854.0 | 1119.0 | L. & B. Haner | June 10 & 30/79 |
| 9 | R.D. 10 | - | - | - | 324.4 | 425.0 | B. Haner | August 22/79 |
| 10 | DAVE 13 | - | - | - | 324.4 | 425.0 | B. Haner | August 22/79 |
| Sub-total | | | | | 4896.0 | 6413.2 | | |
| DRILL SITE | | | | | | | | |
| 1 | R.D. 9 | | | | 94.4 | 123.66 | B. Haner | June 28/79 |
| 2 | DAVE 13 | | | | 110.7 | 145.0 | " | " |
| 3 | MAR 6 | | | | 269.5 | 353.0 | " | June 29/79 |
| 4 | MAR 3 | | | | 117.0 | 153.3 | L. Haner | June 10/79 |
| 5 | MAR 5 | | | | 137.2 | 179.8 | " | " |
| 6 | R.D. 9 | | | | 119.1 | 156.0 | " | August 6/79 |
| 7 | R.D. 9 | | | | 119.1 | 156.0 | B. Haner | August 7/79 |
| 8 | R.D. 10 | | | | 119.1 | 156.0 | " | " |
| 9 | R.D. 10 | | | | 119.1 | 156.0 | " | " |
| 10 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 11 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 12 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 13 | R.D. 9 | | | | 119.1 | 156.0 | " | August 27/79 |
| 14 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 15 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 16 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 17 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 18 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 19 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 20 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 21 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| Sub-total | | | | | 2634.2 | 3450.8 | | |
| GRAND TOTAL | | | | | 7530.2 | 9864.0 | | |

Schedule of Claim Renewals and Work
to Accompany Form C - Application for
a Certificate of Work and Grouping Certificate

GROUP - L

Present Expiry Date: Oct.1.1982

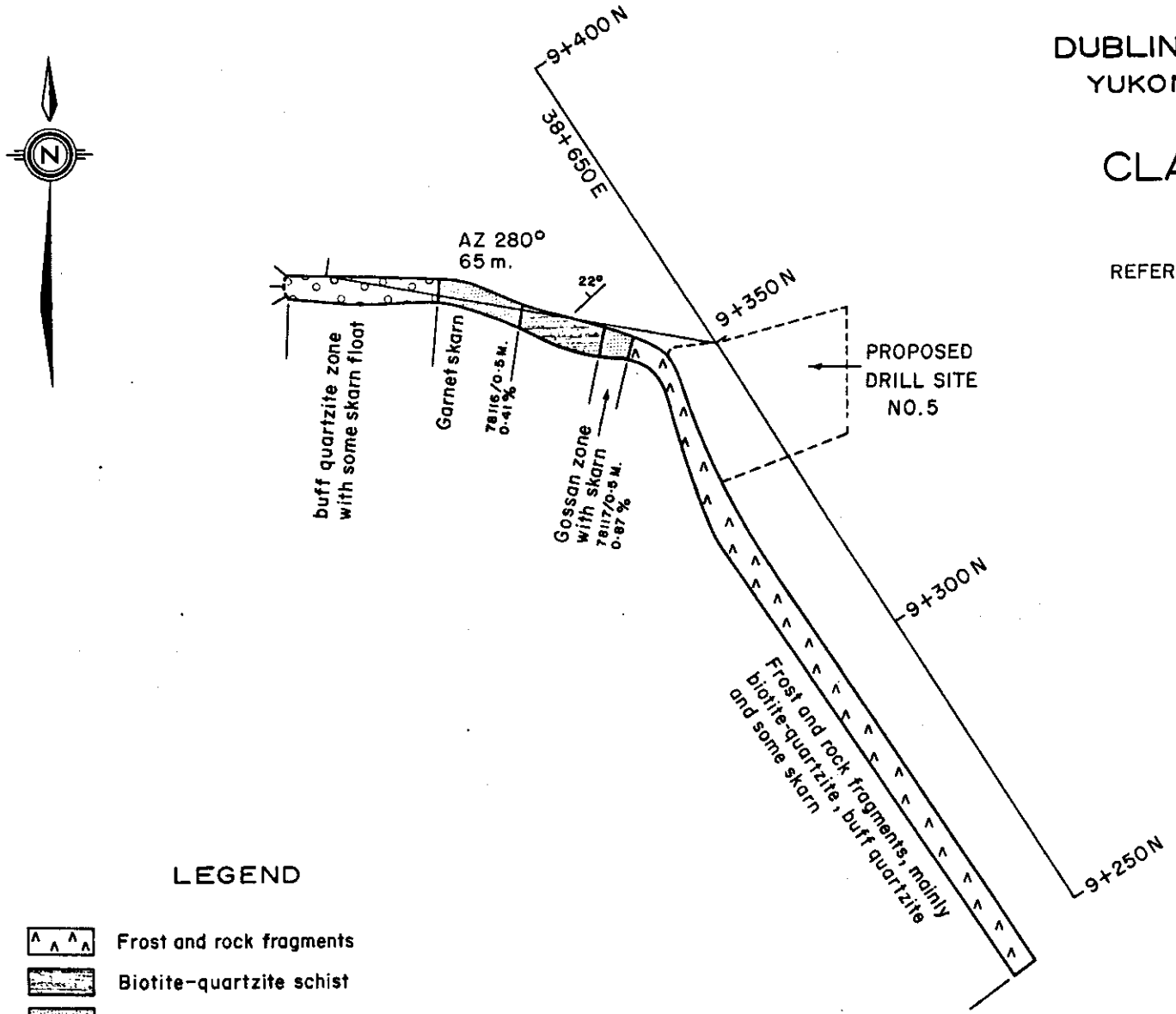
| Claim No. | Grant No. | Renew To | Claim Yrs. | Filing Fees $ | Assessment Requirement $ |
|---|---|---|---|---|---|
| Dave 1 | YA 17802 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 2 | YA 17803 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 13 | YA 17814 | Oct.1.1986 | 4 | 20 | 400 |
| Dave 14 | YA 17815 | Oct.1.1986 | 4 | 20 | 400 |
| R. D.15 | YA 1407 | Oct.1.1986 | 4 | 20 | 400 |
| Bob 1 | YA 17729 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 63 | YA 30081 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 65 | YA 30083 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 74 | YA 30084 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 76 | YA 30086 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 77 | YA 30087 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 67 | YA 17984 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 78 | YA 17991 | Oct.1.1986 | 4 | 20 | 400 |
| Smoky 79 | YA 17992 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 48 | YA 14991 | Oct.1.1986 | 4 | 20 | 400 |
| D.G. 50 | YA 14993 | Oct.1.1986 | 4 | 20 | 400 |
| | | | | $320 | $6400 |


HAGGART DOME
LYNX DOME
N
D G
B O B
S M O K Y
S M O K Y
S M O K Y
R. D.
LOT 11 OLIVE
L
D A V E
J E F F
J E F F
POTATOE HILLS
M A R
M A R
A L E C
A L E C
A L E C
SCALE 1: 50,000

# DUBLIN GULCH PROJECT
YUKON TERRITORY-1979

## TRENCH 4
## CLAIM DAVE 13

SCALE 1:1000
Fig No. 10
REFER TO GEOLOGY MAP NO. 1F




## LEGEND

- Frost and rock fragments
- Biotite-quartzite schist
- Massive garnet skarn
- Muscovite or buff quartzite schist
- 0·41 — $WO_3$ percentage assay result
- 78116 — Sample number

DRAWN BY: EDCO LTD.




3
MAR
79-4
YA14899

10
R.D.
9
79-8
YA 1402
79-9

6
79-3
MAR
YA 14902

5
MAR
79-5
YA 14901

79-11
79-12
9
79-10
79-6
R.D.
79-13
79-14
79-7
79-1
79-15
79-21
YA 1401
79-16

8
1
2
3
MAR
YA 14904

79-2
79-17
4
13
5
79-18
79-19
DAVE
79-20
6
10
YA 17814

16
DAVE
YA17817

15
DAVE
7
8
YA17816

LEGEND

● Diamond drill hole_1979

Trench_1979

CANADA TUNGSTEN MINING CORP. LTD.

DUBLIN GULCH PROJECT
YUKON TERRITORY_1979

LOCATION MAP

| | |
|---|---|
| SCALE: IN. 1:10000 | NTS No. 106-D-4 |
| DATE: 3.1.1980 | MAP No. |
| DRAWN BY: W.G. | To accompany report: |
| REVISED BY | |

# DUBLIN GULCH PROJECT

## YUKON TERRITORY - 1979

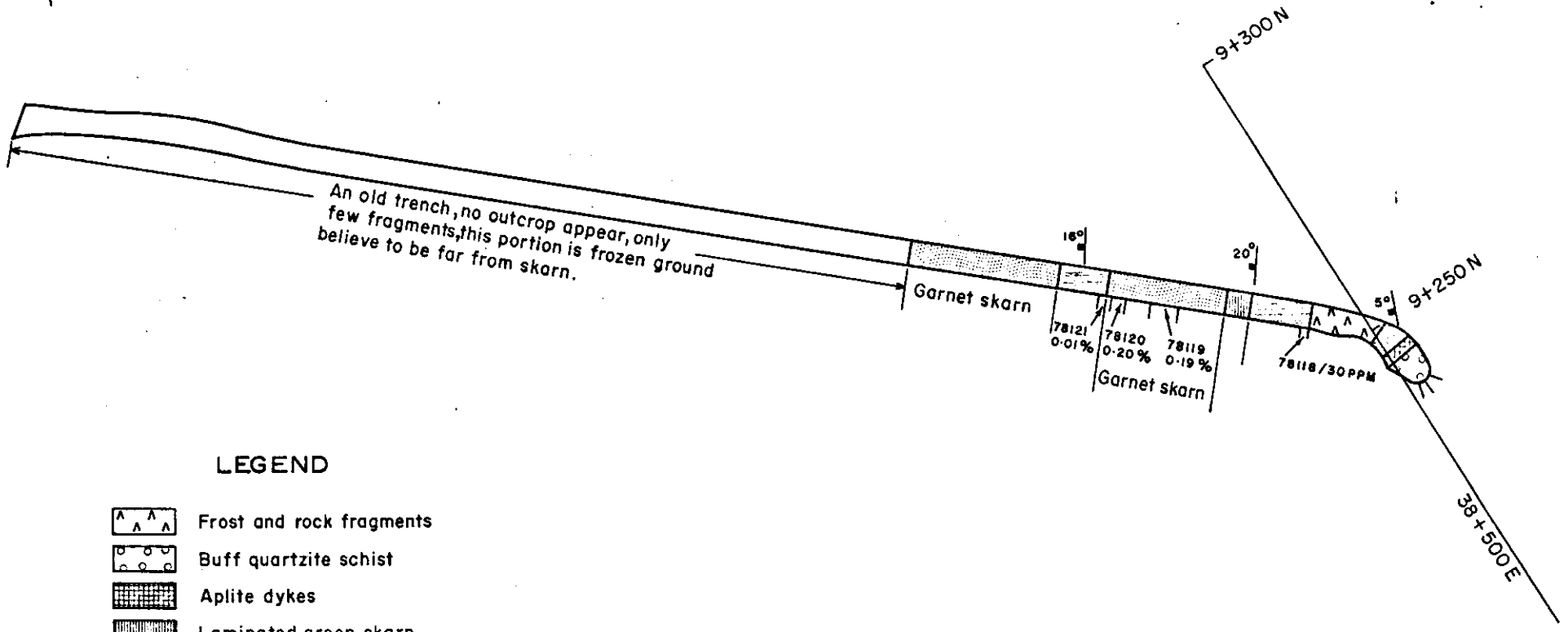
## TRENCH 5

## CLAIM DAVE 13

SCALE 1:1000

Fig No. 11

REFER TO GEOLOGY MAP NO. 1F




### LEGEND

- Frost and rock fragments
- Buff quartzite schist
- Aplite dykes
- Laminated green skarn
- Massive garnet skarn
- Biotite-quartzite schist
- 0·01 — $WO_3$ percentage assay result
- 78120 — Sample number

DRAWN BY: EDCO LTD.

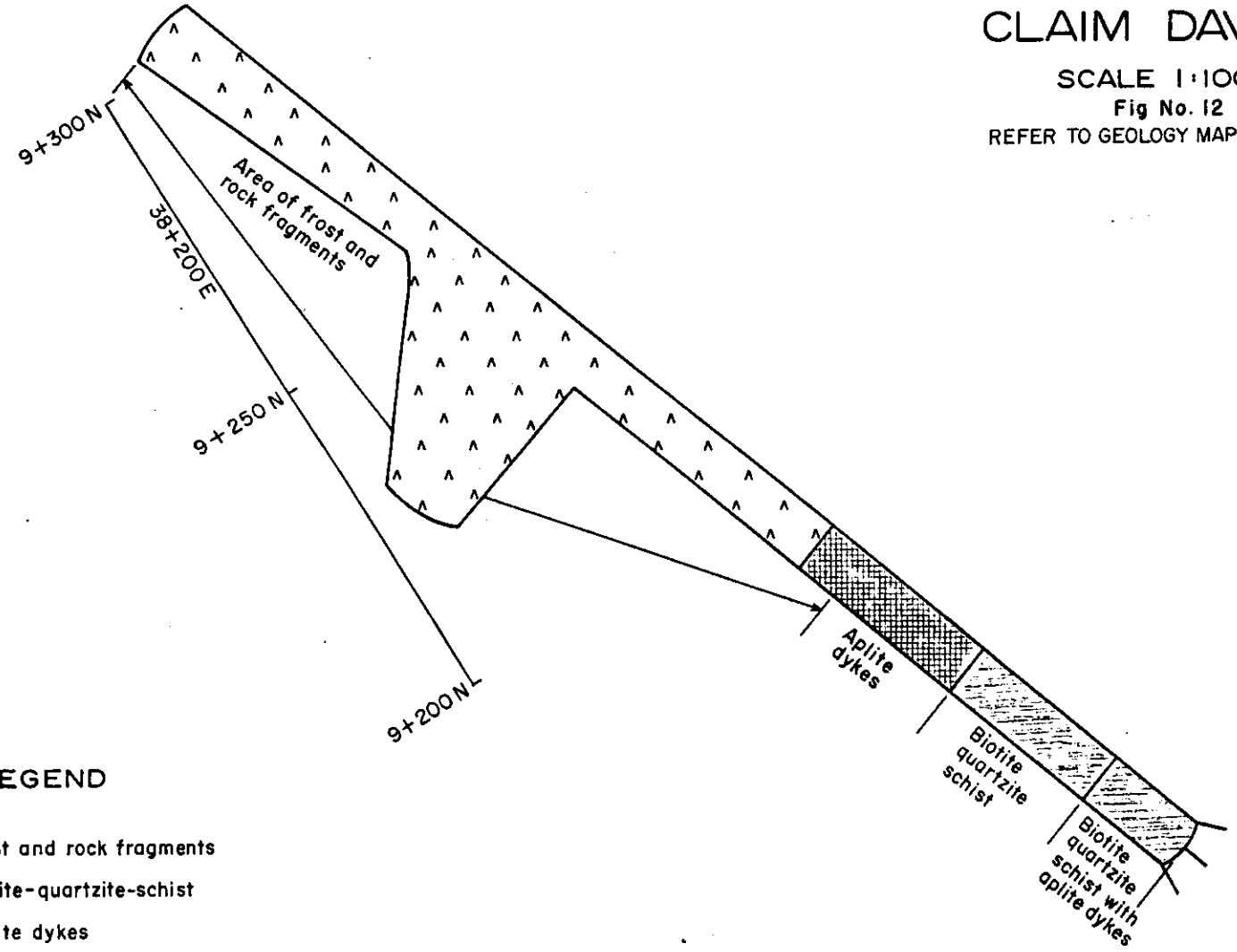
# DUBLIN GULCH PROJECT
YUKON TERRITORY - 1979

## TRENCH 6
## CLAIM DAVE 13

SCALE 1:1000

Fig No. 12

REFER TO GEOLOGY MAP NO. 16




LEGEND

- Frost and rock fragments
- Biotite-quartzite-schist
- Aplite dykes

DRAWN BY: EDCO LTD.

# DUBLIN GULCH PROJECT
YUKON TERRITORY - 1979

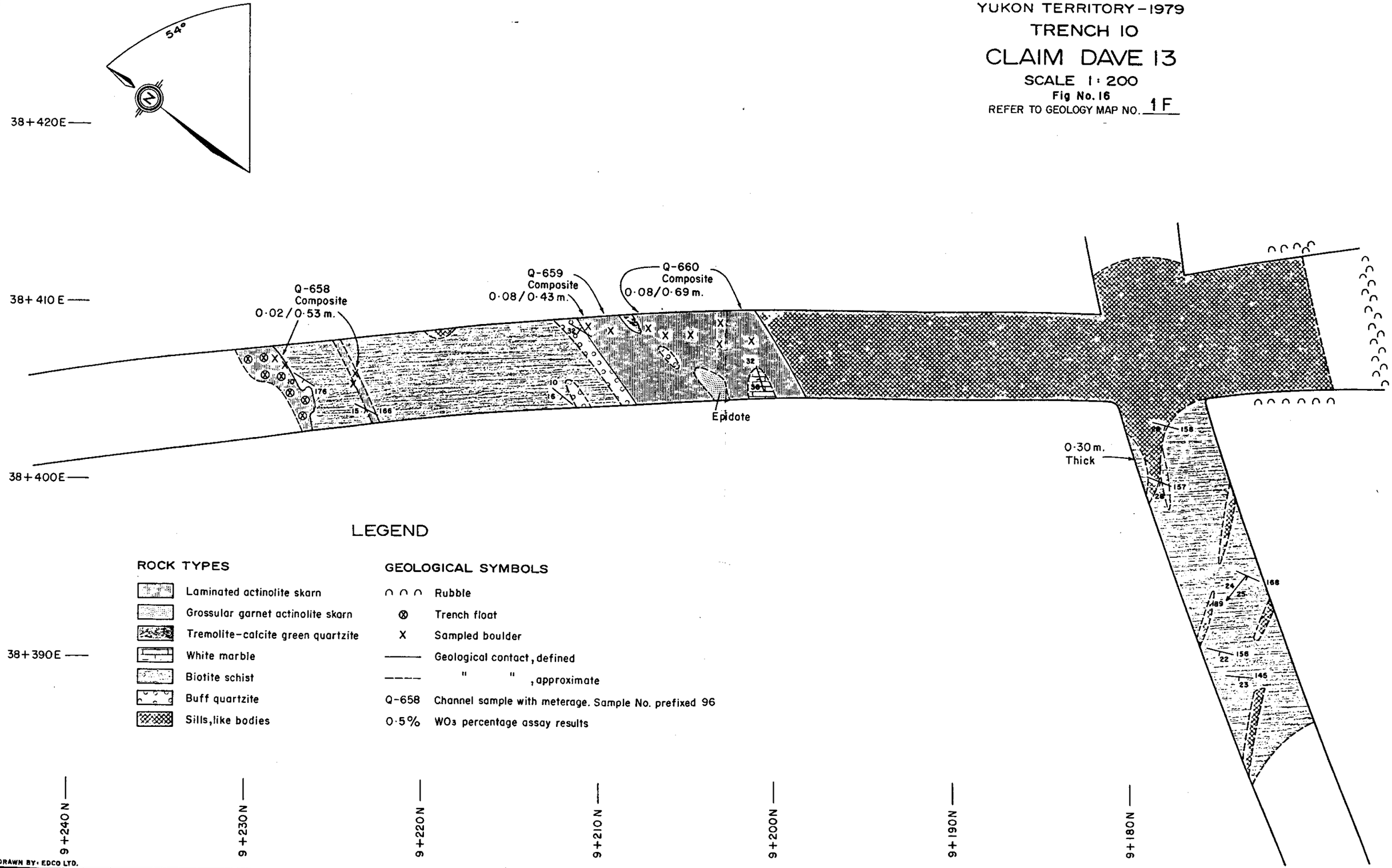
## TRENCH 10

## CLAIM DAVE 13

SCALE 1 : 200

**Fig No. 16**

REFER TO GEOLOGY MAP NO. 1 F




## LEGEND

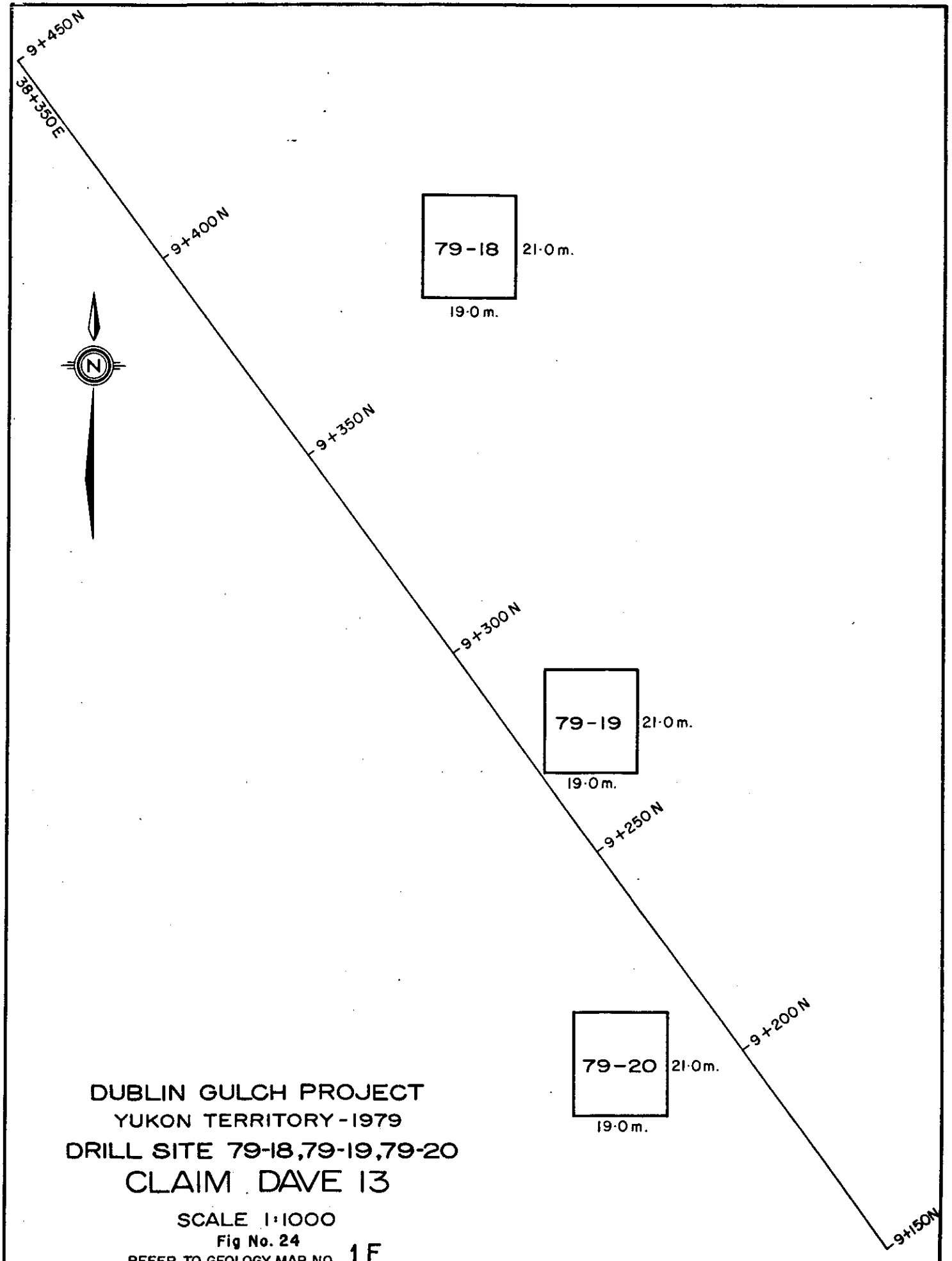
### ROCK TYPES

- Laminated actinolite skarn
- Grossular garnet actinolite skarn
- Tremolite–calcite green quartzite
- White marble
- Biotite schist
- Buff quartzite
- Sills, like bodies

### GEOLOGICAL SYMBOLS

- ∩ ∩ ∩ Rubble
- ⊗ Trench float
- X Sampled boulder
- ——— Geological contact, defined
- – – – " " , approximate
- Q-658 Channel sample with meterage. Sample No. prefixed 96
- 0·5% $WO_3$ percentage assay results

DRAWN BY: EDCO LTD.




# DUBLIN GULCH PROJECT

YUKON TERRITORY - 1979

## DRILL SITE 79-18, 79-19, 79-20

## CLAIM DAVE 13

SCALE 1:1000

Fig No. 24

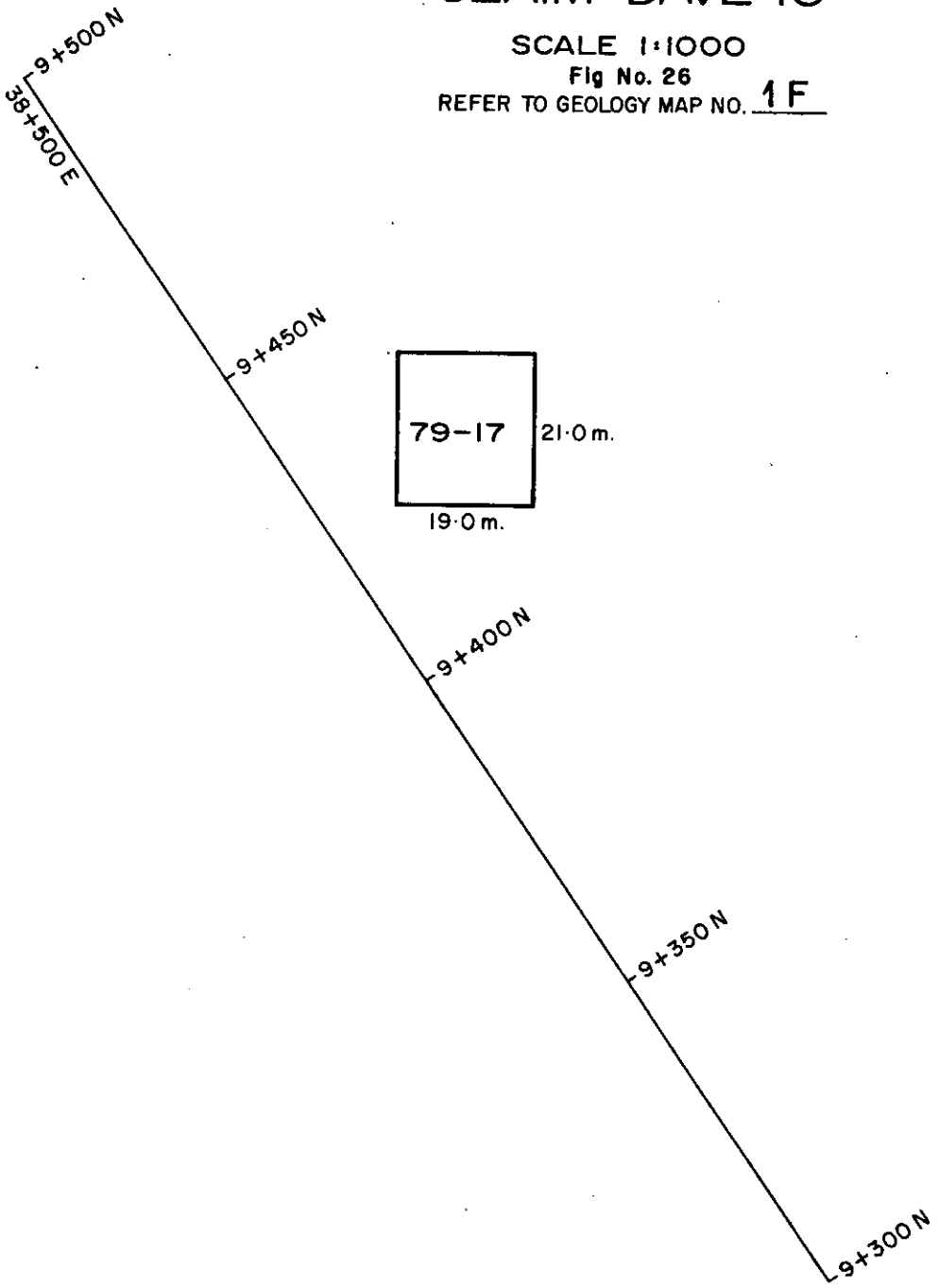
REFER TO GEOLOGY MAP NO. 1F

DRAWN BY: EDCO LTD.

# DUBLIN GULCH PROJECT
YUKON TERRITORY - 1979
## DRILL SITE 79-2, 79-17
## CLAIM DAVE 13

SCALE 1:1000
Fig No. 26
REFER TO GEOLOGY MAP NO. 1F




DRAWN BY: EDCO LTD.

YARDAGE OF MATERIALS REMOVED BY D-7 CAT
FROM TRENCHES AND DIAMOND DRILL SITES
DUBLIN GULCH - 1979

| TRENCH NO. | CLAIM LOCATION | DIMENSION (m) DISTANCE | WIDTH | VERTICAL DISTANCE | VOLUME $m^3$ | $yd^3$ | OPERATOR | DATE |
|---|---|---|---|---|---|---|---|---|
| 1 | MAR 8 | 52.8 | 4.2 | 0.83 | 184.1 | 241.1 | L. Haner | June 10/79 |
| 2 | MAR 8 | 161.0 | 4.1 | 0.83 | 548.0 | 718.0 | L. & B. Haner | June 10 & 30/79 |
| 3 | MAR 8 | 57.0 | 3.63 | 0.50 | 103.0 | 135.0 | L. & B. Haner | June 10 & 30/79 |
| 4 | DAVE 13 | 167.0 | 4.1 | 1.22 | 835.0 | 1094.0 | L. & B. Haner | June 10 & 29/79 |
| 5 | DAVE 13 | 86.0 | 4.1 | 0.9 | 317.0 | 415.0 | B. Haner | June 30/79 |
| 6 | DAVE 13 | 189.0 | 13.0 | 0.3 | 737.0 | 965.0 | L. & B. Haner | June 10 & 30/79 |
| 7 | DAVE 15 | 272.0 | 4.1 | 0.6 | 669.0 | 876.0 | L. & B. Haner | June 10 & 30/79 |
| 8 | DAVE 15 | 305.0 | 5.6 | 0.5 | 854.0 | 1119.0 | L. & B. Haner | June 10 & 30/79 |
| 9 | R.D. 10 | - | - | - | 324.4 | 425.0 | B. Haner | August 22/79 |
| 10 | DAVE 13 | - | - | - | 324.4 | 425.0 | B. Haner | August 22/79 |
| Sub-total | | | | | 4896.0 | 6413.2 | | |
| DRILL SITE | | | | | | | | |
| 1 | R.D. 9 | | | | 94.4 | 123.66 | B. Haner | June 28/79 |
| 2 | DAVE 13 | | | | 110.7 | 145.0 | " | " |
| 3 | MAR 6 | | | | 269.5 | 353.0 | " | June 29/79 |
| 4 | MAR 3 | | | | 117.0 | 153.3 | L. Haner | June 10/79 |
| 5 | MAR 5 | | | | 137.2 | 179.8 | " | " |
| 6 | R.D. 9 | | | | 119.1 | 156.0 | " | August 6/79 |
| 7 | R.D. 9 | | | | 119.1 | 156.0 | B. Haner | August 7/79 |
| 8 | R.D. 10 | | | | 119.1 | 156.0 | " | " |
| 9 | R.D. 10 | | | | 119.1 | 156.0 | " | " |
| 10 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 11 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 12 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 13 | R.D. 9 | | | | 119.1 | 156.0 | " | August 27/79 |
| 14 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 15 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 16 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| 17 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 18 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 19 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 20 | DAVE 13 | | | | 119.1 | 156.0 | " | " |
| 21 | R.D. 9 | | | | 119.1 | 156.0 | " | " |
| Sub-total | | | | | 2634.2 | 3450.8 | | |
| GRAND TOTAL | | | | | 7530.2 | 9864.0 | | |

7,101,000 N.

461,000 E

461,250 E

461,500 E

461,750 E

462,000 E

7,100,750 N.

7,100,500 N.

7,100,250 N.

7,100,000 N.

1110

1120

1130

1140

1150

1160

1170

1180

1190

1200

1210

1220

1230

1240

1250

1260

1270

1280

1290

1271

1290

1300

1310

1320

1330

1340

1350

STEWART

GULCH

Q624
25 m

37°300 E

10+000 N.

## LEGEND

CRETACEOUS

17 MAFIC ROCKS - DYKES & SEGREGATIONS

16 QUARTZ MONZONITE

15 APLITE DYKES

14 GRANODIORITE & GRANITE

13 BIOTITE GRANODIORITE

12 ALASKITE - PINK TO OFF WHITE, BIOTITE ONLY MAFIC < 5%

PRECAMBRIAN AND/OR PALEOZOIC
YUKON GROUP

MINERALIZED UNIT

11 GARNET SKARN - GROSSULAR-DIOPSIDE MASSIVE ROCK

10 MASSIVE DIOPSIDE SKARN

9 VITREOUS SKARN - QUARTZ - PLAGIOCLASE - GROSSULAR - SCHEELITE LAMINATED ROCK

8 LAMINATED DIOPSIDE SKARN - LIGHT GREEN TO PALE WHITE

7 BIOTITE - QUARTZITE FELDSPAR SCHIST

6 STRIPPED HORNBLENDE - BIOTITE - PLAGIOCLASE ROCK

5 MUSCOVITE - QUARTZITE SCHIST

4 GREEN QUARTZITE - CALCITE - QUARTZ - TREMOLITE MASSIVE ROCK

3 BUFF QUARTZITE

2 DEFORMED AND QUARTZ VEINED BUFF QUARTZITE

1 WHITE TO PALE GREY MARBLE

## STRUCTURE & SYMBOLS

FAULTS - DEFINITE, INDEFINITE

GEOLOGICAL CONTACTS - DEFINITE, INDEFINITE

OUTCROP - FLOAT

BOULDER FIELD

BEDDING - DIP(25°), STRIKE

JOINTING, FRACTURING WITH ATTITUDE

CREEKS & STREAMS

CAT ROADS

AIR PHOTO TRIANGULATION SURVEY SITES

DDH-79-2 DIAMOND DRILL HOLE NO - 1979

DDH-80-1 PROPOSED DIAMOND DRILL HOLE NO - 1980

X 0.18% Au 3 RESULT OF CHANNEL, CHIP SAMPLING - 1979 FROM (GARNET SKARN ZONE FLOAT)

0.20% Au 3 1.0 M RESULT OF CHANNEL, CHIP SAMPLING - 1979 FROM TRENCHES & OUTCROPS

TR-79-1 TRENCH NUMBER

1:5000 SCALE

SHEET INDEX

| | | | |
|---|---|---|---|
| | 3 | 2 | 1 |
| 4 | 5 | 6 | 7 |
| 11 | 10 | 9 | 8 |
| 12 | 13 | | |

461,000E 461,250E 461,500E 461,750E 462,000E

7,102,500 N
7,102,000 N
7,101,500 N
7,101,000 N
7,100,500 N
7,100,000 N
7,099,500 N

A B C D E F G H I J K L M

SHEET 6 SHEET 7

CANADA TUNGSTEN MINING CORP. LTD.

# DUBLIN GULCH PROJECT

YUKON TERRITORY - 1979

## DETAILED GEOLOGY

### RAY GULCH GRID

### 1978 GRID AND 1979 EXTENSION

METRES 0 10 20 30 40 50

FEET 0 83.5 166.6 249.9

| | |
|---|---|
| SCALE: N. 1:1,000 | NTS No. 106 D-4 |
| DATE: MARCH, 1980 | MAP No. 1A |
| DRAWN BY: ALTAIR | To accompany report |
| GEOLOGY BY: W. Geworgis and, B. Howard. | 1979 DUBLIN GULCH PROJECT REPORT |




## LEGEND

CRETACEOUS

| | |
|---|---|
| 17 | MAFIC ROCKS - DYKES & SEGREGATIONS |
| 16 | QUARTZ MONZONITE |
| 15 | APLITE DYKES |
| 14 | GRANODIORITE & GRANITE |
| 13 | BIOTITE GRANODIORITE |
| 12 | ALASKITE: PINK TO OFF-WHITE, BIOTITE ONLY MAFIC <5% |

PRECAMBRIAN AND/OR PALEOZOIC

YUKON GROUP

| | |
|---|---|
| 11 | GARNET SKARN, GROSSULAR-DIOPSIDE MASSIVE ROCK |
| 10 | MASSIVE DIOPSIDE SKARN |
| 9 | VITREOUS SKARN, QUARTZ-PLAGIOCLASE-GROSSULAR-SCHEELITE LAMINATED ROCK |
| 8 | LAMINATED DIOPSIDE SKARN, LIGHT GREEN TO PALE WHITE |
| 7 | BIOTITE-QUARTZITE FELDSPAR SCHIST |
| 6 | STRIPPED HORNBLENDE-BIOTITE-PLAGIOCLASE ROCK |
| 5 | MUSCOVITE-QUARTZITE SCHIST |
| 4 | GREEN QUARTZITE, CALCITE-QUARTZ-TREMOLITE MASSIVE ROCK |
| 3 | BUFF QUARTZITE |
| 2 | DEFORMED AND QUARTZ VEINED BUFF QUARTZITE |
| 1 | WHITE TO PALE GREY MARBLE |

MINERALIZED UNIT

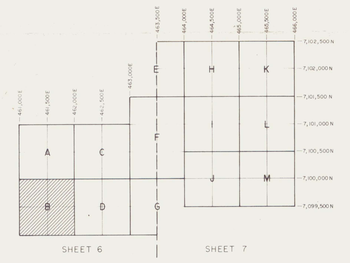
### STRUCTURE & SYMBOLS

- FAULTS - DEFINITE, INDEFINITE
- GEOLOGICAL CONTACTS - DEFINITE, INDEFINITE
- OUTCROP - FLOAT
- BOULDER FIELD
- BEDDING - DIP(25°), STRIKE
- JOINTING, FRACTURING WITH ATTITUDE
- CREEKS & STREAMS
- CAT ROADS
- AIR PHOTO TRIANGULATION SURVEY SITES
- DDH-79-2 — DIAMOND DRILL HOLE NO - 1979
- DDH-80-1 — PROPOSED DIAMOND DRILL HOLE NO. - 1980
- X 0.18% we3 — RESULT OF CHANNEL, CHIP SAMPLING - 1979 FROM GARNET SKARN ZONE FLOAT
- 0.20% we3 / 1.0 M — RESULT OF CHANNEL, CHIP SAMPLING - 1979 FROM TRENCHES & OUTCROPS
- TR-79-1 — TRENCH NUMBER

1:5,000 Scale

SHEET INDEX

| | | | |
|---|---|---|---|
| | 3 | 2 | 1 |
| 4 | 5 | 6 | 7 |
| 11 | 10 | 9 | 8 |
| 12 | 13 | | |




SHEET 6 SHEET 7

CANADA TUNGSTEN MINING CORP LTD

# DUBLIN GULCH PROJECT

YUKON TERRITORY - 1979

## DETAILED GEOLOGY

RAY GULCH GRID

1978 GRID AND 1979 EXTENSION

METRES: 0 10 20 30 40 50 — FEET: 0 83.3 166.6 249.9

| | |
|---|---|
| SCALE IN 1:1,000 | NTS No. 106 D-4 |
| DATE MARCH, 1980 | MAP No. 1B |
| DRAWN BY: ALTAIR | To accompany report |
| GEOLOGY BY: W. Gewargis and B. Howard. | 1979 DUBLIN GULCH PROJECT REPORT |




## LEGEND

CRETACEOUS

17 MAFIC ROCKS - DYKES & SEGREGATIONS

16 QUARTZ MONZONITE

15 APLITE DYKES

14 GRANODIORITE & GRANITE

13 BIOTITE GRANODIORITE

12 ALASKITE PINK TO OFF WHITE, BIOTITE ONLY MAFIC < 5%

PRECAMBRIAN AND / OR PALEOZOIC

YUKON GROUP

MINERALIZED UNIT

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10 MASSIVE DIOPSIDE SKARN

9 STRATIFORM SKARN QUARTZ-PLAGIOCLASE-GROSSULAR-SCHEELITE LAMINATED ROCK

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7 BIOTITE - QUARTZITE FELDSPAR SCHIST

6 STRIPPED HORNBLENDE - BIOTITE - PLAGIOCLASE ROCK

5 MUSCOVITE - QUARTZITE SCHIST

4 GREEN QUARTZITE CALCITE-QUARTZ-TREMOLITE MASSIVE ROCK

3 BUFF QUARTZITE

2 DEFORMED AND QUARTZ VEINED BUFF QUARTZITE

1 WHITE TO PALE GREY MARBLE

## STRUCTURE & SYMBOLS

FAULTS - DEFINITE, INDEFINITE

GEOLOGICAL CONTACTS - DEFINITE, INDEFINITE

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BOULDER FIELD

25 BEDDING - DIP(25°), STRIKE

JOINTING, FRACTURING WITH ATTITUDE

CREEKS & STREAMS

CAT ROADS

AIR PHOTO TRIANGULATION SURVEY SITES

DDH-79-2 DIAMOND DRILL HOLE NO - 1979

DDH-80-1 PROPOSED DIAMOND DRILL HOLE NO - 1980

X 0.18% WO3 RESULT OF CHANNEL CHIP SAMPLING - 1979 FROM (GARNET SKARN ZONE FLOAT)

0.20% WO3 / 10 M RESULT OF CHANNEL CHIP SAMPLING - 1979 FROM TRENCHES & OUTCROPS

TR-79-1 TRENCH NUMBER

1 : 5,000 Scale

SHEET INDEX

| | | |
|---|---|---|
| | 3 | 2 | 1 |
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| 11 | 10 | 9 | 8 |
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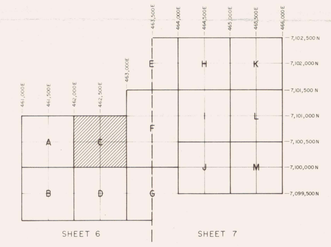



CANADA TUNGSTEN MINING CORP. LTD.

# DUBLIN GULCH PROJECT

YUKON TERRITORY - 1979

## DETAILED GEOLOGY

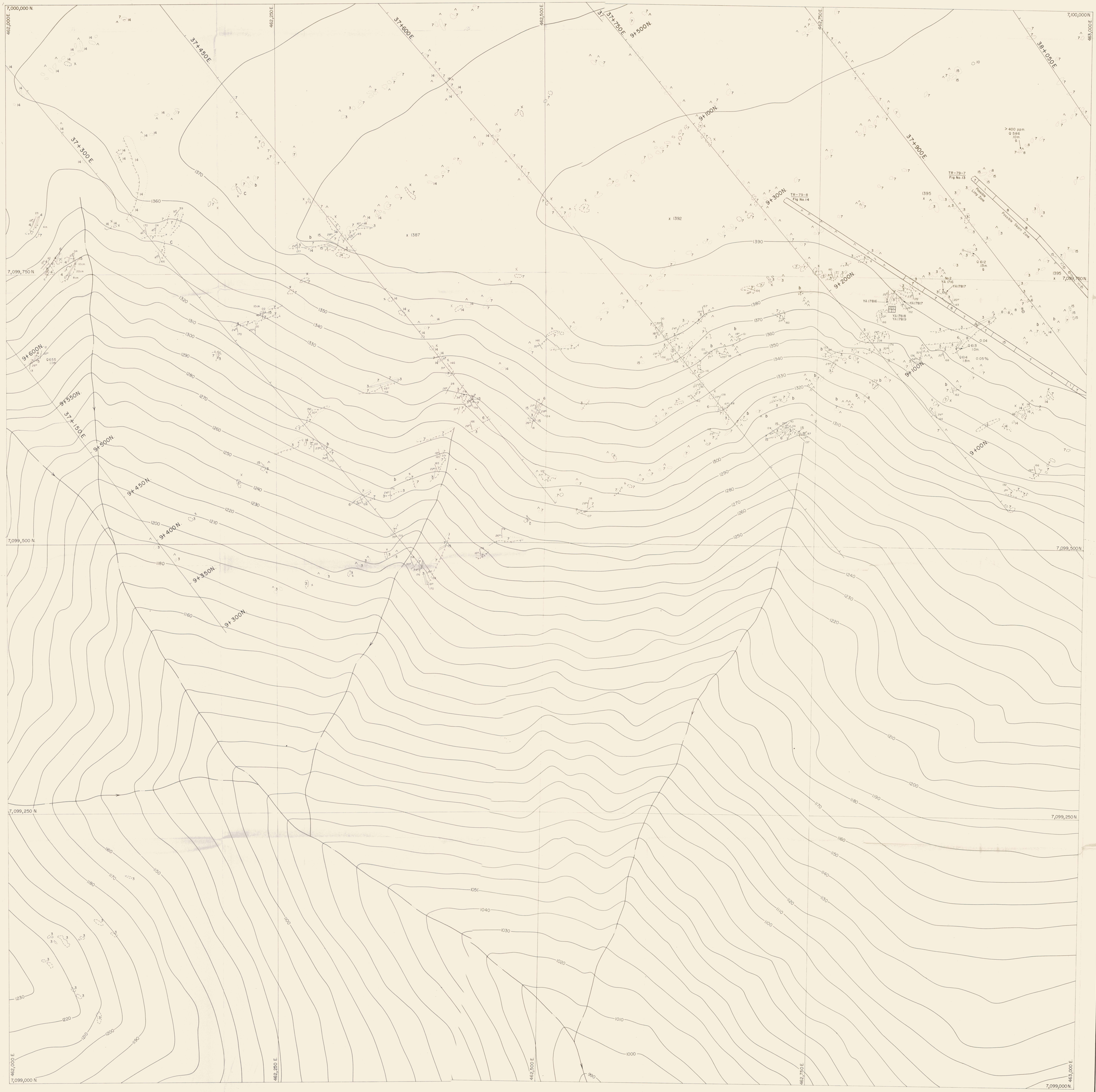
### RAY GULCH GRID

### 1978 GRID AND 1979 EXTENSION

METRES 0 10 20 30 40 50

FEET 0 83.3 166.6 249.9

| | |
|---|---|
| SCALE IN 1 : 1,000 | NTS No. 106 D-4 |
| DATE MARCH, 1980 | MAP No. 1C |
| DRAWN BY ALTAIR | To accompany report |
| GEOLOGY BY W. Gewargis and B. Howard | 1979 DUBLIN GULCH PROJECT REPORT |




## LEGEND

### CRETACEOUS

17 MAFIC ROCKS - DYKES & SEGREGATIONS

16 QUARTZ MONZONITE

15 APLITE DYKES

14 GRANODIORITE to GRANITE

13 BIOTITE GRANODIORITE

12 ALASKITE - PINK TO OFF WHITE, BIOTITE ONLY MAFIC < 5%

### PRECAMBRIAN AND/OR PALEOZOIC
### YUKON GROUP

MINERALIZED UNIT

11 GARNET SKARN, GROSSULAR-DIOPSIDE MASSIVE ROCK

10 MASSIVE DIOPSIDE SKARN

9 VITREOUS SKARN, QUARTZ-PLAGIOCLASE-GROSSULAR-SCHEELITE LAMINATED ROCK

8 LAMINATED DIOPSIDE SKARN, LIGHT GREEN TO PALE WHITE

7 BIOTITE-QUARTZITE FELDSPAR SCHIST

6 STRIPPED HORNBLENDE-BIOTITE-PLAGIOCLASE ROCK

5 MUSCOVITE-QUARTZITE SCHIST

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3 BUFF QUARTZITE

2 DEFORMED AND QUARTZ VEINED BUFF QUARTZITE

1 WHITE TO PALE GREY MARBLE

### STRUCTURE & SYMBOLS

FAULTS - DEFINITE, INDEFINITE

GEOLOGICAL CONTACTS - DEFINITE, INDEFINITE

OUTCROP - FLOAT

BOULDER FIELD

BEDDING - DIP(25°), STRIKE

JOINTING, FRACTURING WITH ATTITUDE

CREEKS & STREAMS

CAT ROADS

AIR PHOTO TRIANGULATION SURVEY SITES

DDH-79-2 DIAMOND DRILL HOLE NO - 1979

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TR-79-1 TRENCH NUMBER

1:5000 SCALE

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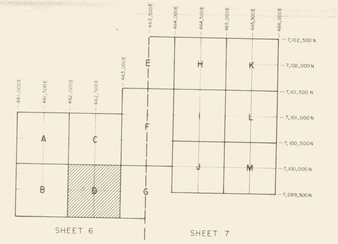


CANADA TUNGSTEN MINING CORP LTD.

# DUBLIN GULCH PROJECT

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## DETAILED GEOLOGY
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### 1978 GRID AND 1979 EXTENSION

METRES 0 10 20 30 40 50 FEET 0 83.3 166.6 249.9

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| DATE: MARCH, 1980. | NTS No. 106 D-4 |
| DRAWN BY: ALTAIR. | MAP No. 1 D |
| GEOLOGY BY: W. Gewargis and B. Howard. | To accompany report. 1979 DUBLIN GULCH PROJECT REPORT |

7,101,500 N
463,000 E
463,250 E
463,500 E
463,750 E
464,000 E
7,101,250 N
7,101,000 N
7,100,750 N
7,100,500 N
7,100,250 N
7,100,000 N

10+000N
9+900N
9+800N
9+700N
9+600N
9+500N
9+400N
9+300N
BASE 10+00 N.
L 39+700 E
L 39+550 E
L 39+400 E
L 39+250 E
L 39+100 E
L 38+950 E
L 38+800 E
L 38+650 E
L 38+500 E
L 38+350 E

1360 1370 1380 1390 1400 1410 1420 1430

DDH 80-1 DDH 80-2 DDH 80-3 DDH 80-4 DDH 80-5 DDH 80-6 DDH 80-7 DDH 80-8 DDH 80-9 DDH 80-10 DDH 80-11 DDH 80-12 DDH 80-13 DDH 80-14 DDH 80-15 DDH 80-16 DDH 80-17 DDH 80-18 DDH 80-19 DDH 80-20 DDH 80-21 DDH 80-22 DDH 80-23 DDH 80-24 DDH 80-25 DDH 80-26 DDH 80-27 DDH 80-28 DDH 80-29 DDH 80-30 DDH 80-31 DDH 80-32 DDH 80-33 DDH 80-34
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dyke

Q-635 19m.
Q-636 19m.
Q-914 0.34%
Q-916 15m 0.47%
Q-917 40m 0.88%
Q-918 20m 0.26%
Q-920 45m 0.23
Q-921 0.22%
Q-922 0.33%
Q-98 20m 0.15%
Q-97 60m 0.15%
Q-910 800ppm-w
Q-9 800ppm 50m
Q-900 800ppm 40m
Q-912 50cm 0.49%
Q-94 W>400 ppm
Q-95 W-400 ppm
Q-911 1m 0.03%
Q-577 24m 90ppm
Q-574 08m >400ppm
Q-575 >400ppm 30m
Q-578 10m >400ppm
Q-596 30m 0.18
Q-591 37m 0.12
Q-594 42m 0.15
Q-658 53m
Q-659 43m
Q-660 67m
Q-557 12m W>400 ppm
Q-559 11m W>400 ppm
Q-558 27m 0.16%
Q-560 32m 0.07%
Q-556 20m W>400 ppm
Q-553 25m 0.41%
Post I 81719
Post I 81720
Q-55 >800ppm
Q-58 80m <0.01
Q-59 2.8m 0.19%
Q-67 75m
Q-3 33m
Q-56 1.5m
Q-555 2.0m
Q-554 95m
Q-93 15m 0.18%
Q-92 45m 0.13%
Q-60 13m 0.05%
Q-79 65m 0.15%
Q-70 10m 0.14%
Q-69 15m 0.04%
Q-68 04m 0.00%
Q-66 0.75m 0.07%
Q-65 0.85m 0.00%
Q-64 1.05m 0.09%
Q-67 1.3m <0.01
Q-62 1.3m <0.01
Q-61 0.8m <0.01
0.10% Q-60 1.55m
0.03% Q-71
0.04% Q-72
0.04% Q-82 1.8m
0.03% Q-78 1.70m
0.08% Q-77 1.5m
0.04% Q-76 1.3m
10cm marble

INSET:
See Vitreous Skarn
Trench 9 Fig No. 15

ASSAYS

BOULDERS

| No. | METERAGE | %Wo3 |
|---|---|---|
| 96913 | 50 | 2.95 |
| 96628 | 67 | 0.85 |
| 96629 | 48 | 1.96 |
| 96630 | 52 | 2.40 |
| 96631 | 55 | 1.33 |
| 96632 | 46 | 0.97 |
| 96633 | 53 | 0.97 |
| 96634 | 29 | 0.46 |
| 96637 | 108 | 0.32 |
| 96638 | 61 | 0.29 |
| 96639 | 95 | 0.18 |

CHANNEL SAMPLES

| No. | METERAGE | %Wo3 |
|---|---|---|
| 96643 | 46 | 0.33 |
| 96644 | 1.9 | 1.79 |
| 96645 | 1.1 | 0.50 |
| 96646 | 35 | 0.85 |
| 96647 | 33 | 1.28 |

TR-79-1 Fig No.7
TR-79-2 Fig No.8
TR-79-3 Fig No.9
TR-79-4 Fig No.10
TR-79-5
TR-79-9
TR-79-10

INSET
See Trench 10 Fig No.16

X 1389 X 1395 X 1397 X 1402 X 1409 X 1429 X 1405 X 1412 X 1396 X 1317

## CRETACEOUS

17 MAFIC ROCKS - DYKES & SEGREGATIONS
16 QUARTZ MONZONITE
15 APLITE DYKES
14 GRANODIORITE & GRANITE
13 BIOTITE GRANODIORITE
12 ALASKITE. PINK TO OFF WHITE, BIOTITE ONLY MAFIC ≤5%

## PRECAMBRIAN AND/OR PALEOZOIC
### YUKON GROUP

11 GARNET SKARN. GROSSULAR-DIOPSIDE MASSIVE ROCK
10 MASSIVE DIOPSIDE SKARN
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## STRUCTURE & SYMBOLS

FAULTS - DEFINITE, INDEFINITE
GEOLOGICAL CONTACTS - DEFINITE, INDEFINITE
OUTCROP - FLOAT
BOULDER FIELD
BEDDING - DIP(25°), STRIKE
JOINTING, FRACTURING WITH ATTITUDE
CREEKS & STREAMS
CAT ROADS
AIR PHOTO TRIANGULATION SURVEY SITES
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TR-79-1 TRENCH NUMBER

SHEET 6 SHEET 7

CANADA TUNGSTEN MINING CORP. LTD.

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| DATE: MARCH, 1980 | MAP No. 1F |
| DRAWN BY: ALTAIR | To accompany report |
| GEOLOGY BY: W. Gewargis, and, B. Howard | 1979 DUBLIN GULCH PROJECT REPORT |




## LEGEND

### CRETACEOUS

17 MAFIC ROCKS - DYKES & SEGREGATIONS

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### STRUCTURE & SYMBOLS

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OUTCROP - FLOAT

BOULDER FIELD

25 BEDDING - DIP (25°), STRIKE

JOINTING, FRACTURING WITH ATTITUDE

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TR-79-1 TRENCH NUMBER

1:5000 SCALE

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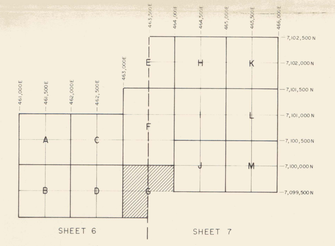


SHEET 6 SHEET 7

CANADA TUNGSTEN MINING CORP. LTD.

# DUBLIN GULCH PROJECT

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| | |
|---|---|
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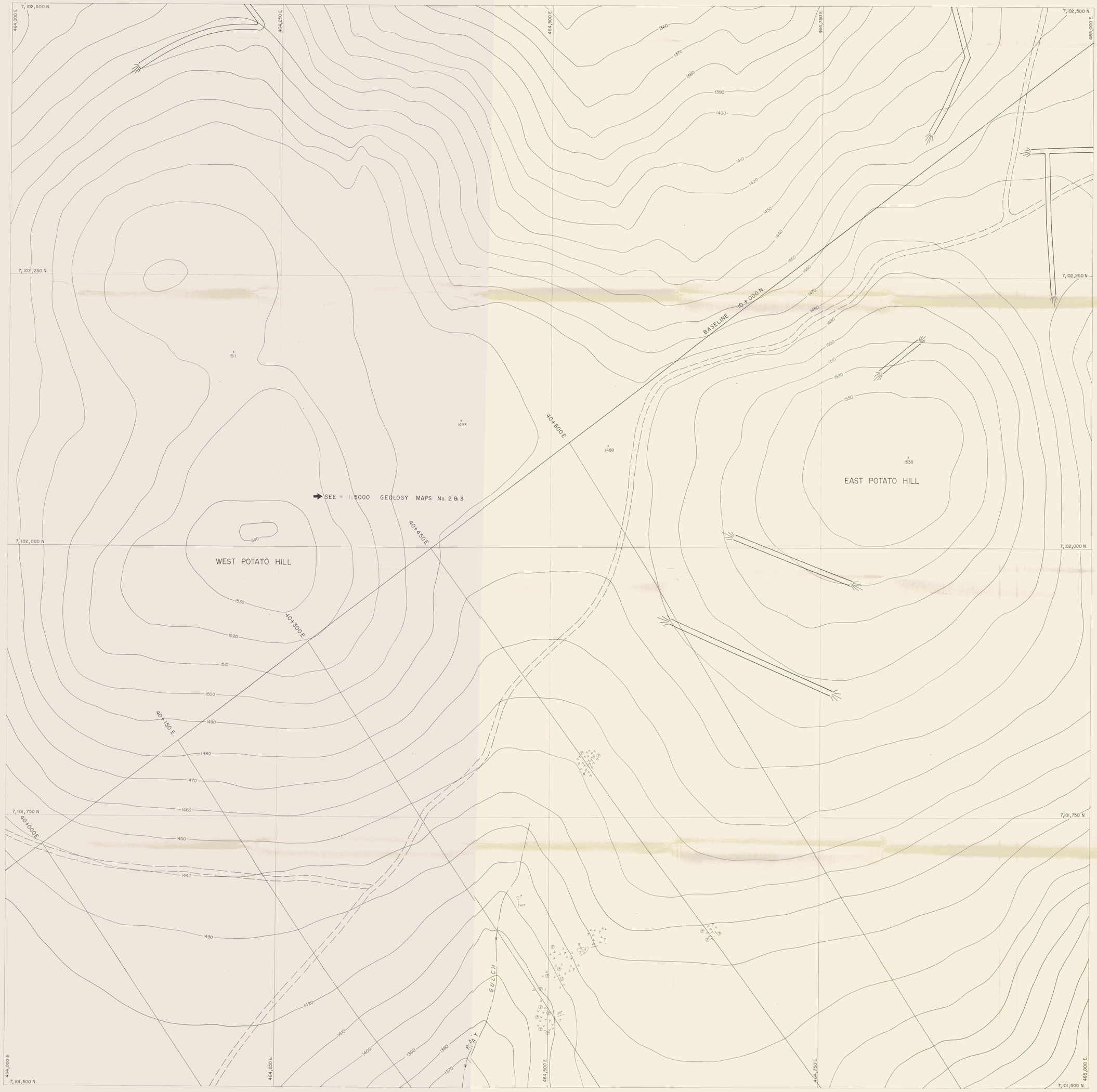
| GEOLOGY BY W. Gewargis and, B. Howard. | 1979 DUBLIN GULCH PROJECT REPORT |




## LEGEND

CRETACEOUS

- 17 MAFIC ROCKS - DYKES & SEGREGATIONS
- 16 QUARTZ MONZONITE
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PRECAMBRIAN AND/OR PALEOZOIC
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## STRUCTURE & SYMBOLS

- FAULTS - DEFINITE, INDEFINITE
- GEOLOGICAL CONTACTS - DEFINITE, INDEFINITE
- OUTCROP - FLOAT
- BOULDER FIELD
- 25°/ BEDDING - DIP (25°), STRIKE
- 30°/ 25°/ JOINTING, FRACTURING WITH ATTITUDE
- CREEKS & STREAMS
- CAT ROADS
- AIR PHOTO TRIANGULATION SURVEY SITES
- DDH-79-2 DIAMOND DRILL HOLE NO.-1979
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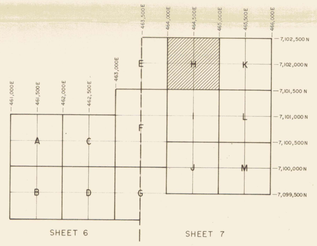


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## LEGEND

### CRETACEOUS

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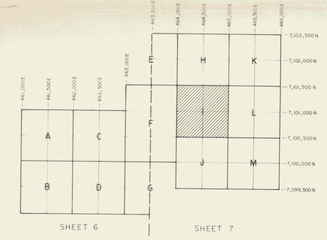


SHEET 6 SHEET 7

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| | |
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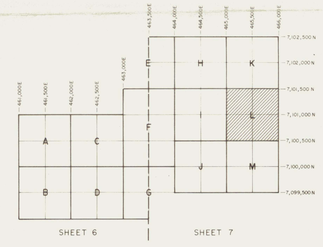


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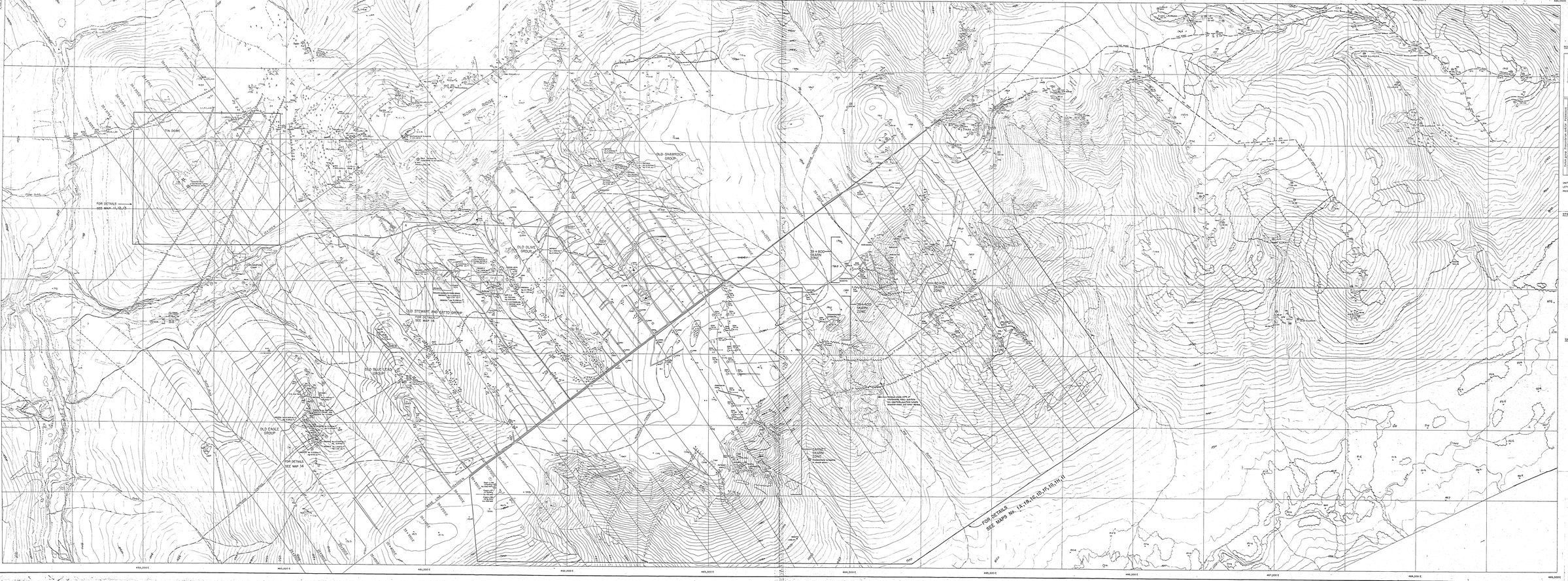
| DRAWN BY: ALTAIR. | To accompany report |
| GEOLOGY BY: W. Gewargis, and, B. Howard. | 1979 DUBLIN GULCH PROJECT REPORT |




## LEGEND

### ROCK TYPES & DESCRIPTION

| | | |
|---|---|---|
| Cenozoic | 1 | Quartz-saxonite-monzogranite ash - greenland in texture, N.Breton |
| | 2 | Quartz-rare bot stock with-white g. biotite sheetite |
| | 3 | Mafic rocks - dykes, segregations and green stone |
| | 4 | Quartz monzonite |
| | 5 | Aplite and quartz-feldspar (porphyry) dykes and sills |
| | 6 | Granodiorite and granite |
| Devonian to Mississippian Plutonic Rocks | 7 | Biotite granodiorite |
| | 8 | Alaskite - pink to off white, biotite only mafic <5% |
| | 9 | Garnet skarn - grossular-diopside massive rock |
| | 10 | Wollaston diopside skarn |
| | 11 | Vitreous skarn - quartz-plagioclase-grossular-wollastite lensoidal rock |
| | 12 | Lensoidal diopside skarn - light green to pale white |
| Devonian to Mississippian Metamorphic Rocks | 13 | Biotite quartzite feldspar-sericite. To Biotite schist, To interbedded schist and quartzite, To Clastic schist |
| | 14 | Striped hornblende-biotite-plagioclase rock volcanic |
| | 15 | Muscovite-quartzite-schist<br>To Biotite quartzite, To Sericite schist |
| | 16 | Green quartzite - calcite-quartz-wollastite massive |
| | 17 | Quartzite<br>To Ribbon quartzite, To Biotite quartzite |
| | 18 | Deformed and quartz veined buff quartzite |
| | 19 | White to pale grey marble |
| | 20 | Phyllite. Dk Buff quartz-z sericite (brown),<br>Dk Graphitic phyllite slate (black), Dk Chloritic schist and phyllite,<br>Dk Green phyllite. Dk Graphitic quartzite and argillite. |

UNIT No.
LITHOLOGY
PHYSIOGRAPHIC COLOUR KEY

### STRUCTURE AND SYMBOLS

- Outcrop
- Contact (defined, approximate, concealed)
- Float, angular boulder fields
- Bedding attitudes
- Jointing or fracture attitudes
- Vein - dip and dip direction indicated
- Fault (defined, approximate) w/dip
- Trenches
- DDH 1971
- DDH 1979
- Survey marker
- Aerial photography spots site
- Mineral showing
- Drift with dump, adit
- Open cut
- Underground workings projected to surface
- Claim post
- Roads

### SAMPLES

- Note station for field notes
- Rock specimen number
- Rock chip or grab sample number
- Silt sample
- Soil sample
- Rock chip sample across width of vein, location with sample number
- Composite rock chip sample across 1 m, width centred on vein, vein material included in sample.
- Rock chip sample
- W(pan), Sc(pan), Ay(adit), Ag (pan), Ma(pan)
  Sc(pan), W(pan), Ad(pan), Ay(pit)

KEY TO 1:50K

| | | | |
|---|---|---|---|
| 3 | 2 | 1 | |
| 4 | 5 | | |
| 11 | 10 | 8 | 9 |
| 12 | 13 | | |

CANADA TUNGSTEN MINING CORP. LTD.

DUBLIN GULCH PROJECT
YUKON TERRITORY - 1979

DETAILED
GEOLOGICAL COMPILATION

| | | | |
|---|---|---|---|
| SCALE | 1:1000 | NTS No. | 106 D/5 E |
| DATE | 1979 | MAP No. | 1 |
| DUBLIN GULCH PROJECT | | | |
| DRAWN BY | | | |

464,000 E | 465,000 E | 466,000 E | 467,000 E | 468,000 E | 469,000 E

7,107,000 N | 7,106,000 N | 7,105,000 N | 7,104,000 N | 7,103,000 N

# LEGEND

## ROCK TYPES & DESCRIPTION

| | | | |
|---|---|---|---|
| Cretaceous | 19 | 107 | Quartz-scorodite-arsenopyrite vein-greenband in fractures and shears |
| | 18 | 110 | Quartz veins and stock work - white ± limonite - sheelite |
| | 17 | 931 | Mafic rocks - dykes, segregations and green stone |
| | 16 | 924 | Quartz monzonite |
| | 15 | 918 | Aplite and quartz - feldspar (porphiry) dykes and sills |
| | 14 | 921 | Granodiorite and granite |
| | 13 | 922 | Biotite granodiorite |
| | 12 | 939 | Alaskite : pink to off white, biotite only mafic < 5% |
| Yukon group Precambrian and/or Paleozoic Metamorphosed units | 11 | 909 | Garnet skarn : grossular - diopside massive rock |
| | 10 | 907 | Massive diopside skarn |
| | 9 | 911 | Vitreous skarn : quartz - plagioclase - grossular - scheelite laminated rock |
| | 8 | 912 | Laminated diopside skarn : light green to pale white |
| | 7 | 943 | Biotite - quartzite - feldspar - schist. 7a: Biotite schist, 7b: Intercalated schist and quartzite, 7c: Chlorite schist |
| | 6 | 937 | Striped hornblende - biotite - plagioclase rock volcanic |
| | 5 | 916 | Muscovite - quartzite - schist<br>5a: Sericite quarzite, 5b: Sericite schist |
| | 4 | 951 | Green quartzite : calcite - quartz - tremolite massive |
| | 3 | 940 | Buff quartzite<br>3a: Massive quartzite, 3b: Biotite quartzite |
| | 2 | 964 | Deformed and quartz veined buff quartzite |
| | 1 | 903 | White to pale grey marble |
| | 0 | 966 | Phyllite Oa: Buff phyllite ± andalusite (brown), Ob: Graphitic phyllite slate (black), Oc: Chloritic schist and phyllite, Od: Silver phyllite Oe: Graphitic quartzite and argillite. |

UNIT NO.
LETRATONE
PRISMA COLOUR NO.

## STRUCTURE AND SYMBOLS

- Outcrop
- Contact (defined, approximate)
- Float
- Bedding attitudes
- Trench
- Claim post ■ Survey marker

## SAMPLES

- Note station for field notes
- 58-123 Rock specimen number
- Q96662 Rock chip or grab sample number
- X 4402 Silt sample
- 1,1,<10,0.4 W (ppm), Sn (ppm), Au (ppb), Ag (ppm)

N

SHEET INDEX

| | | | |
|---|---|---|---|
| | 3 | 2 | |
| 4 | 5 | 6 | 7 |
| 11 | 10 | 9 | 8 |
| 12 | 13 | | |

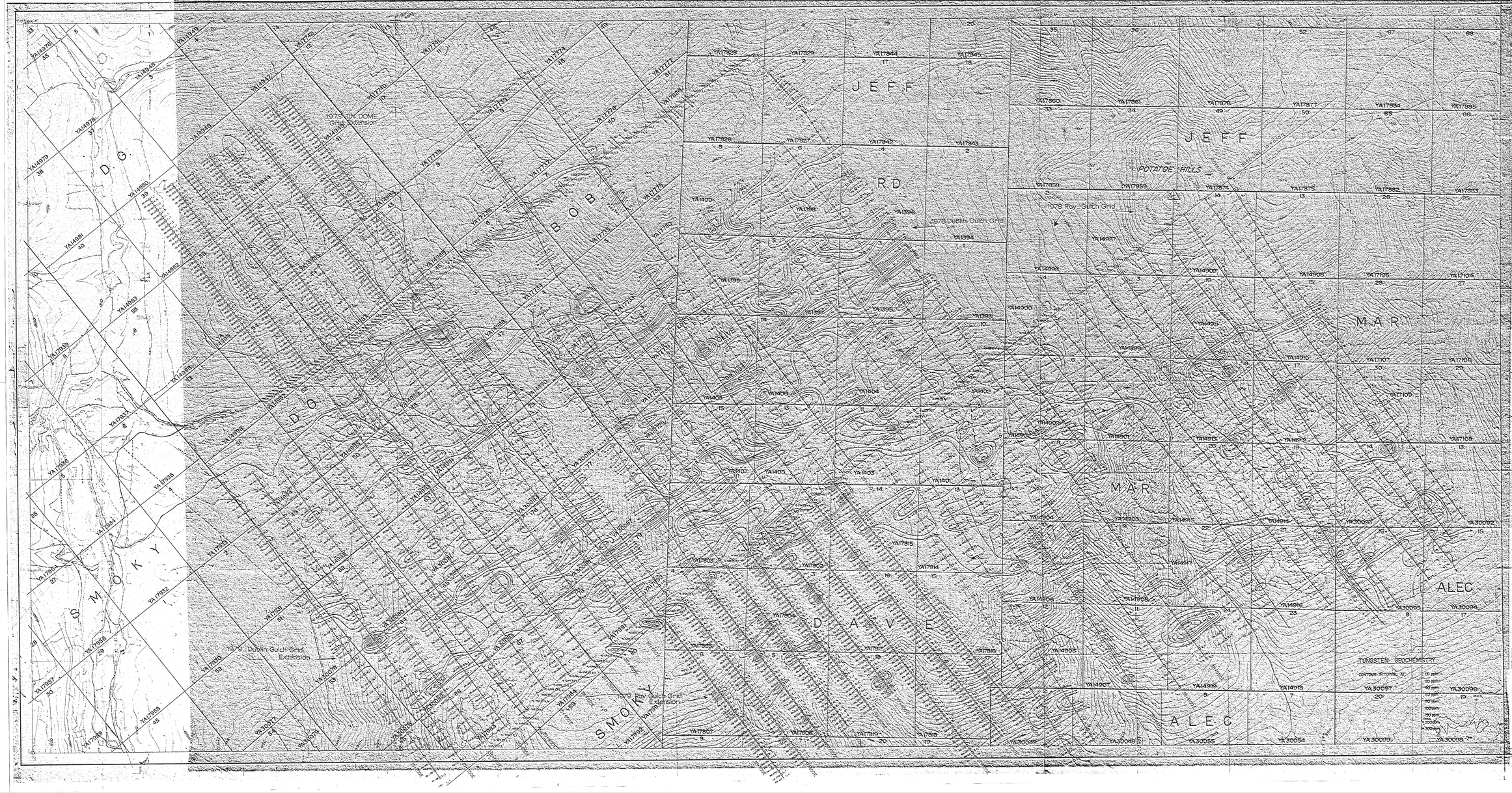
CANADA TUNGSTEN MINING CORP. LTD.

DUBLIN GULCH PROJECT
YUKON TERRITORY - 1979

DETAILED
GEOLOGICAL COMPILATION

METRES 50 0 50 100 150 200 FEET

| | | | |
|---|---|---|---|
| SCALE IN | 1:5000 | NTS No. | 106-D-4 |
| DATE | FEBRUARY, 1980 | MAP No. | 3 |
| GEOLOGY BY | S.C. Bartlett & B. Howard | To accompany report | 1979 DUBLIN GULCH PROJECT |
| DRAWN BY | EDCO LTD. | REVISED BY | W. Gwosdz & B. Lennon |




## LEGEND

GEOCHEMICAL SAMPLING

S-113 ○ SAMPLE LOCATION WITH SAMPLE NUMBER

SAMPLE LOCATIONS

△ STREAM SAMPLE
○ SOIL SAMPLE
□ ROCK SAMPLE

SAMPLE NUMBERS

SAMPLES ARE DESIGNATED BY A LETTER FOLLOWED BY A SEQUENTIAL NUMBER-THE LETTER INDICATES AN INDIVIDUAL SAMPLER.

SAMPLE ANALYSIS RESULTS

A SUITE OF 3 ELEMENTS - TUNGSTEN,TIN & MOLYBDENUM ARE DISPLAYED IN SERIES AS SHOWN:

S-113 ○ 2,1,1 Sample Number ○ Tungsten,Tin, Moly

DETECTION LIMITS

TUNGSTEN- 4 PPM ; VALUES BELOW LIMIT SHOWN AS 2 PPM
TIN- 2 PPM ; VALUES BELOW LIMIT SHOWN AS 1 PPM

SYMBOLS

TREE- VEGETATION LIMITS
CUT ROADS AND TRENCHES
CONTOUR INTERVAL = 10 Metres

NOTE - See Map No. For Stream & Rock Geochemistry

SHEET INDEX

| | | |
|---|---|---|
| 3 | 2 | 1 |
| 4 | 5 | |
| 11 | 10 | 9 |
| 12 | 13 | |

TUNGSTEN GEOCHEMISTRY

CONTOUR INTERVAL 50

| |
|---|
| 50 ppm |
| 100 ppm |
| 200 ppm |
| 300 ppm |
| 400 ppm |
| 500 ppm |
| 600 ppm |
| 700 ppm |
| 800 ppm |
| 900 ppm |
| 1000 ppm |

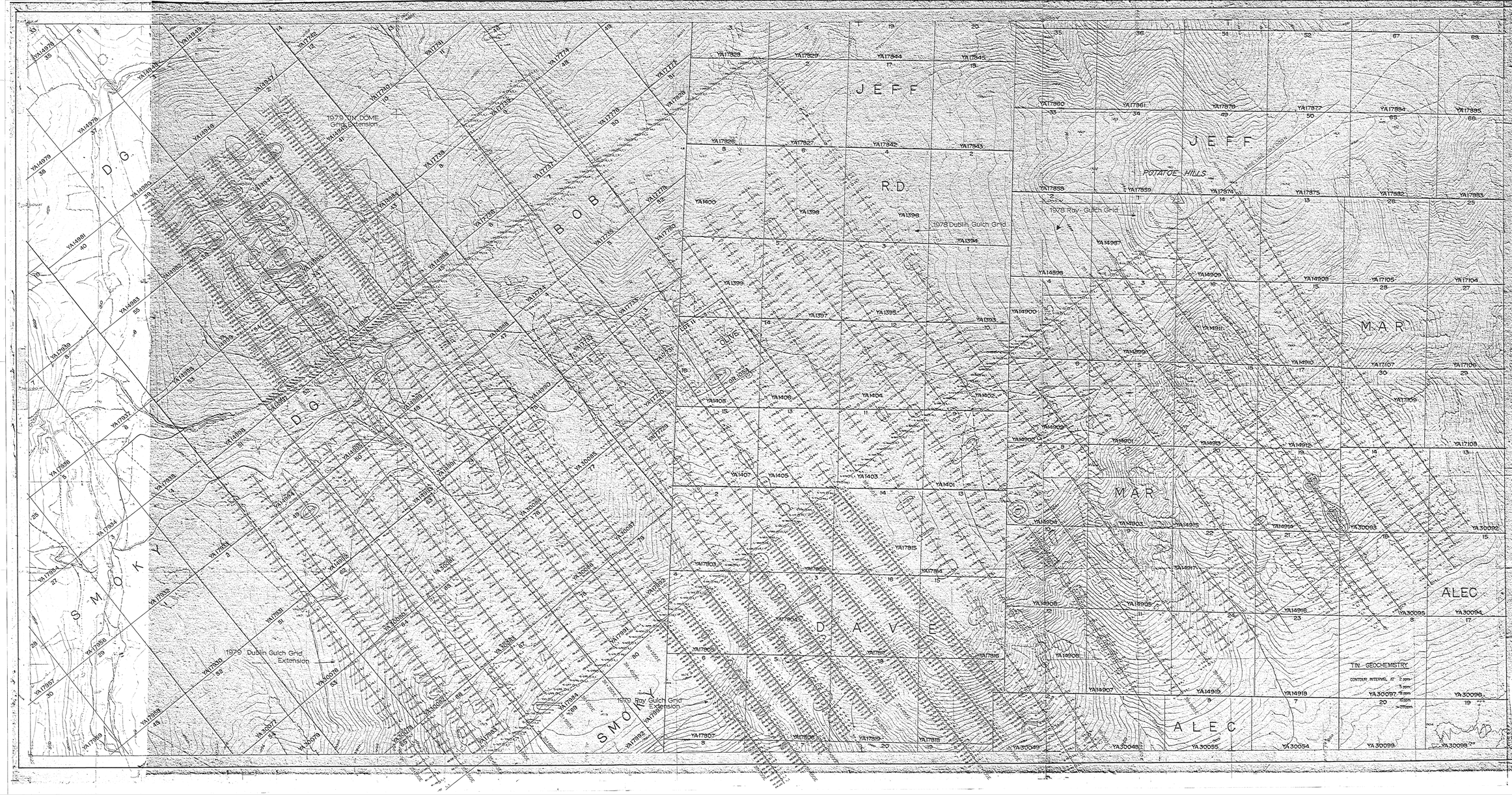
CANADA TUNGSTEN MINING CORP LTD.

# 1978 DUBLIN GULCH DETAILED & 1979 GEOCHEMISTRY

## RAY GULCH GRID AND DUBLIN GULCH GRID

10 METRES / CONTOUR INTERVAL — FEET
0 50 100 200 300 400

SCALE: 1 METRE = 1000 — NTS No. 105 J - 4
DATE: FEB. 1980 — MAP No. 3
DRAWN BY: R. LENNAN — FILE: 80-MAP-003-1979
REVISED BY: — 1979 DUBLIN GULCH PROJECT REPORT




## LEGEND

GEOCHEMICAL SAMPLING

S-113 ○ SAMPLE LOCATION WITH SAMPLE NUMBER

SAMPLE LOCATIONS

△ STREAM SAMPLE

○ SOIL SAMPLE

□ ROCK SAMPLE

SAMPLE NUMBERS

SAMPLES ARE DESIGNATED BY A LETTER FOLLOWED BY A SEQUENTIAL NUMBER. THE LETTER INDICATES AN INDIVIDUAL SAMPLER.

SAMPLE ANALYSIS RESULTS

A SUITE OF 3 ELEMENTS - TUNGSTEN, TIN & MOLYBDENUM ARE DISPLAYED IN SERIES AS SHOWN:

S-113 ○ 2,1,1 Sample Number ○ Tungsten, Tin, Moly

DETECTION LIMITS

TUNGSTEN: 4 PPM; VALUES BELOW LIMIT SHOWN AS 2 PPM

TIN: 2 PPM; VALUES BELOW LIMIT SHOWN AS 1 PPM

SYMBOLS

TREE VEGETATION LIMITS

CUT ROADS AND TRENCHES

CONTOUR INTERVAL = 10 Metres

NOTE: See Map No. For Stream & Rock Geochemistry

SHEET INDEX

| | | | |
|---|---|---|---|
| | 3 | 2 | 1 |
| 4 | 5 | | |
| 11 | 10 | 9 | 8 |
| 12 | 13 | | |

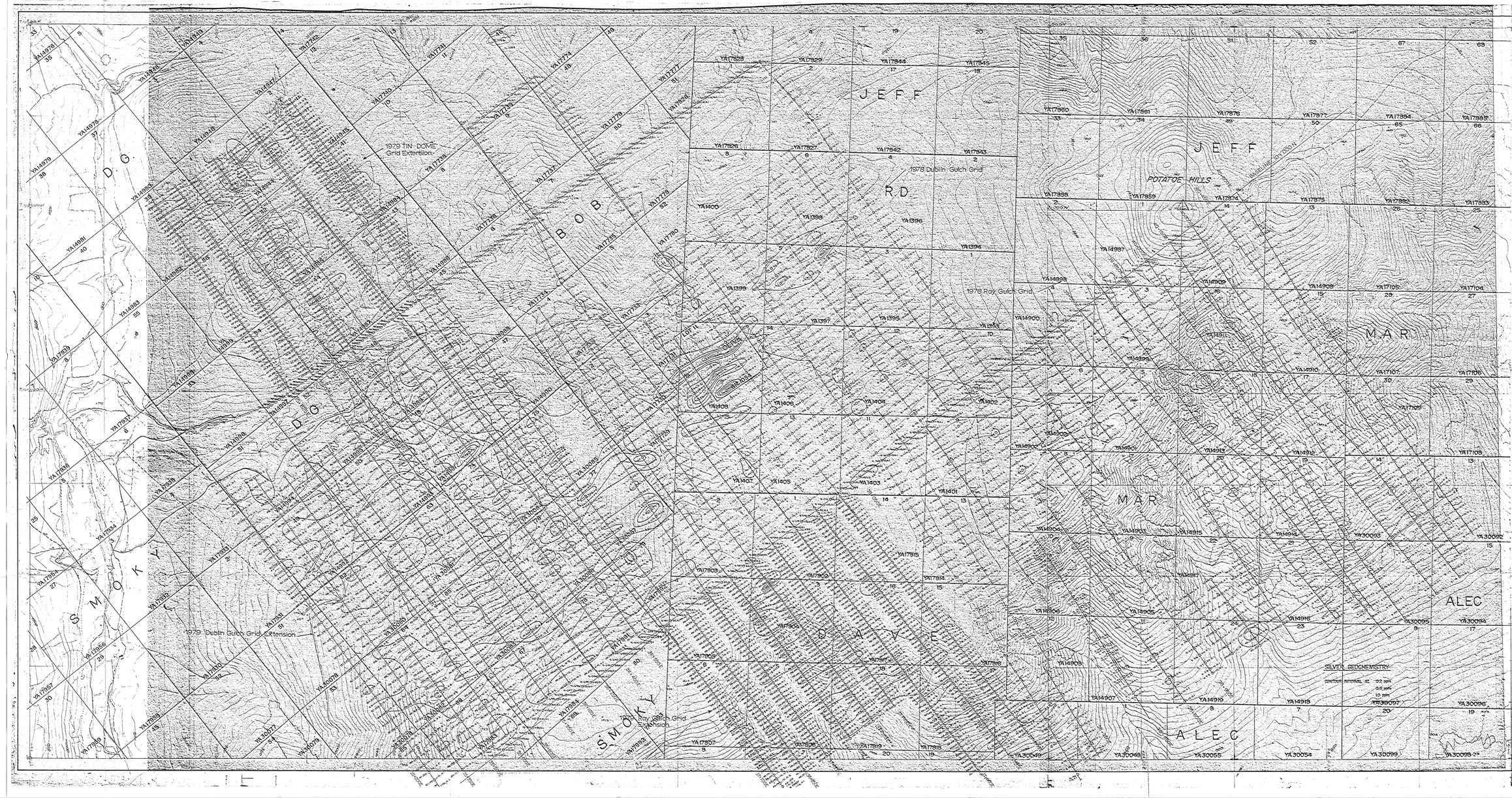
CANADA TUNGSTEN MINING CORP LTD.

1978 DUBLIN GULCH DETAILED & 1979 GEOCHEMISTRY

RAY GULCH GRID AND DUBLIN GULCH GRID

METRES: CONTOUR INTERVAL 0 50 100 150 200 250 FEET

| | |
|---|---|
| SCALE IN METRES: 1:5000 | NTS No. 105 D-4 |
| DATE FEB 1980 | MAP No. 5 |
| DRAWN BY: B. LEWNAN | To accompany report: 1979 DUBLIN GULCH PROJECT REPORT |
| REVISED BY: | |




## LEGEND

GEOCHEMICAL SAMPLING

S-113 ○ SAMPLE LOCATION WITH SAMPLE NUMBER

SAMPLE LOCATIONS

△ STREAM SAMPLE

○ SOIL SAMPLE

□ ROCK SAMPLE

SAMPLE NUMBERS

SAMPLES ARE DESIGNATED BY A LETTER FOLLOWED BY A SEQUENTIAL NUMBER.THE LETTER INDICATES AN INDIVIDUAL SAMPLER.

SAMPLE ANALYSIS RESULTS

A SUITE OF 2 ELEMENTS - GOLD & SILVER ARE DISPLAYED IN SERIES AS SHOWN :-

S-113 ○ 10,.01 Sample Number ○ Gold ,Silver (PPB) ,(PPM)

DETECTION LIMITS

GOLD : 0 PPB ; VALUES BELOW LIMIT SHOWN AS < 10 PPB

SILVER : 0.2 ; VALUES BELOW LIMIT SHOWN AS 0.1 PPM

SYMBOLS

TREE VEGETATION LIMITS

CUT ROADS AND TRENCHES

CONTOUR INTERVAL = 10 Metres

NOTE - See Map No. For Stream & Rock Geochemistry

SHEET INDEX

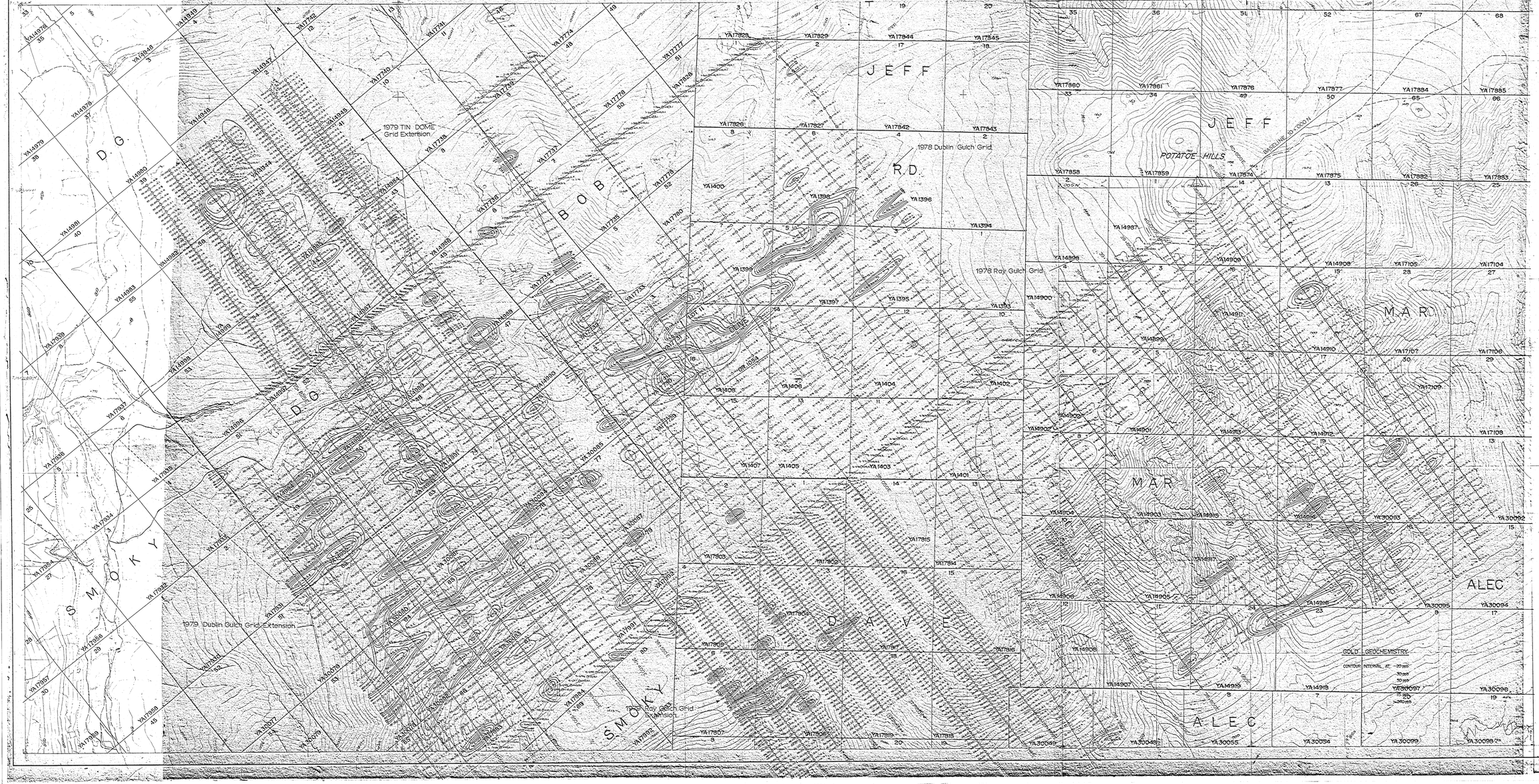
| | | | |
|---|---|---|---|
| | 3 | 2 | 1 |
| 4 | 5 | | |
| 11 | 10 | 9 | 8 |
| 12 | 13 | | |

CANADA TUNGSTEN MINING CORP. LTD

# 1978 DUBLIN GULCH DETAILED & 1979 GEOCHEMISTRY

## RAY GULCH GRID AND DUBLIN GULCH GRID

| | |
|---|---|
| SCALE IN METRES - 1:5000 | NTS NO. 106 D-8 |
| DATE FEB. 1980 | MAP NO. 6 |
| DRAWN BY R. LEWMAN | DRAWING NO. |
| REVISED BY | 1979 DUBLIN GULCH PROJECT REPORT |




## LEGEND

GEOCHEMICAL SAMPLING

5-113 ○ SAMPLE LOCATION WITH SAMPLE NUMBER

SAMPLE LOCATIONS

△ STREAM SAMPLE

○ SOIL SAMPLE

□ ROCK SAMPLE

SAMPLE NUMBERS

SAMPLES ARE DESIGNATED BY A LETTER FOLLOWED BY A SEQUENTIAL NUMBER. THE LETTER INDICATES AN INDIVIDUAL SAMPLER.

SAMPLE ANALYSIS RESULTS

A SUITE OF 2 ELEMENTS - GOLD & SILVER ARE DISPLAYED IN SERIES AS SHOWN:

5-113 ○ 10 .01 Sample Number ○ Gold (PPB) Silver (PPM)

DETECTION LIMITS

GOLD - 10 PPB ; VALUES BELOW LIMIT SHOWN AS < 10 PPB

SILVER - 0.2 ; VALUES BELOW LIMIT SHOWN AS .01 PPM

SYMBOLS

TREE VEGETATION LIMITS

CUT ROADS AND TRENCHES

CONTOUR INTERVAL = 10 Metres

NOTE - See Map No. For Stream & Rock Geochemistry

SHEET INDEX

| | | | |
|---|---|---|---|
| | 3 | 2 | 1 |
| 4 | 5 | | |
| 11 | 10 | 9 | 8 |
| 12 | 13 | | |

GOLD GEOCHEMISTRY

CONTOUR INTERVAL AT - 20 PPB
30 PPB
50 PPB
80 PPB
200 PPB

CANADA TUNGSTEN MINING CORP. LTD.

# 1978 DUBLIN GULCH DETAILED & 1979 GEOCHEMISTRY

## RAY GULCH GRID AND DUBLIN GULCH GRID

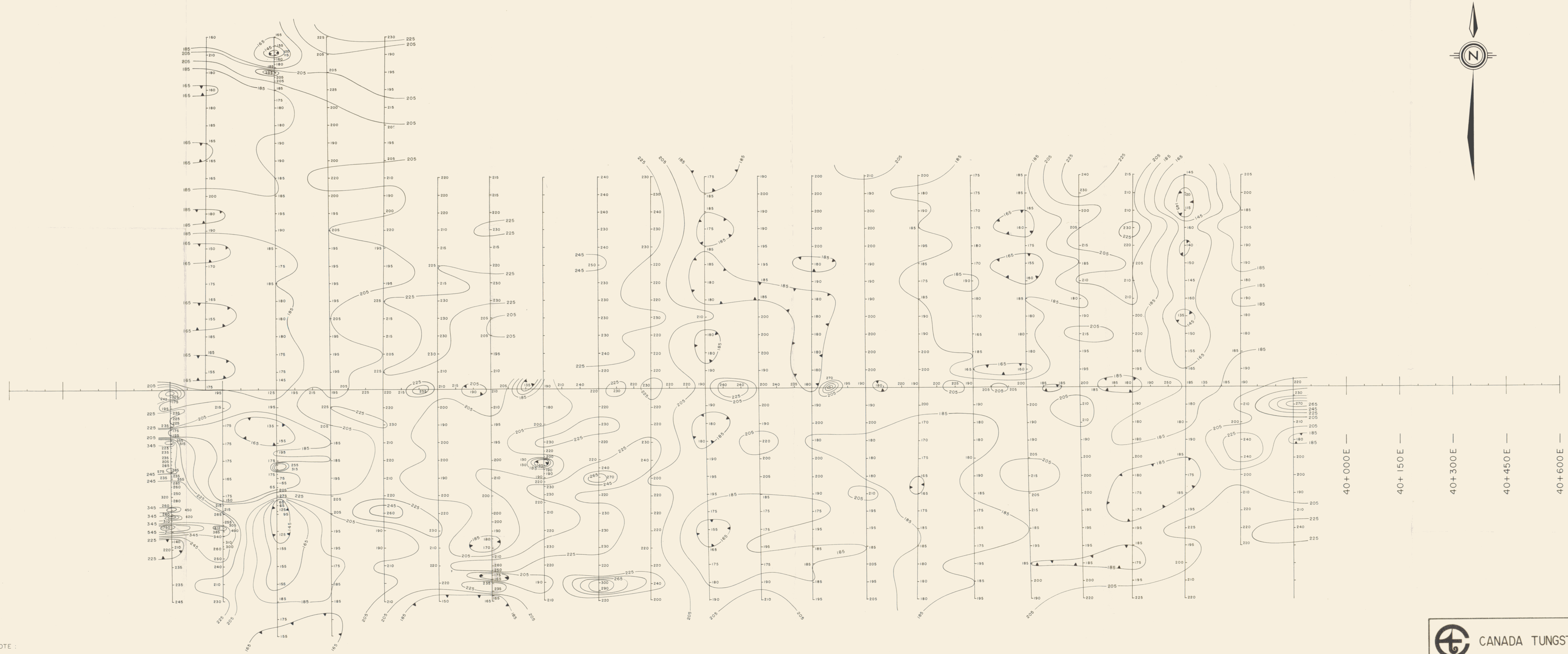
10 METRES / CONTOUR INTERVAL — FEET

SCALE IN METRES 1:5000 — NTS No. 106 D-4

DATE FEB. 1980 — MAP No. 7

DRAWN BY S. LENNAN — TA 80009/0003 THOR

REVISED BY — 1979 DUBLIN GULCH PROJECT REPORT




NOTE :

CONTOUR INTERVAL: 20 GAMMAS

AT THE VICINITY OF LINE 36+700 100 GAMMAS

CANADA TUNGSTEN MINING CORP. LTD.

# DUBLIN GULCH PROJECT

YUKON TERRITORY 1979

## GROUND MAGNETOMETER SURVEY MAP

METRES 50 0 50 100 150 200

FEET

| | |
|---|---|
| SCALE: IN : | 1 : 5,000 |
| DATE: | MARCH, 1980 |
| DRAWN BY: | EDCO LTD. |
| SURVEYED BY: | G. SOPHER |
| NTS No. | 106 D-4 |
| MAP No. | 8 |
| To accompany report | 1979 DUBLIN GULCH PROJECT REPORT |




7101.000 N

## LEGEND

### LOCATION

- A–F Proposed for bulk sampling & Cat trenching.
- G–J Proposed for bulk sampling.
- K–O Proposed for bulk sampling.

### ROCK TYPES

- 14 Biotite diorite to biotite Granodiorite
- 7 Micaceous Quartzite, Quartz Mica Schist, and grey phyllite (minor Quartzite).

### STRUCTURE

- ---- Geological Contacts (assumed)
- Foliation with strike and dip.
- Lineation, trend and plunge.

### GEOCHEMISTRY ROCK SAMPLING.

Soil and stream sediments samples all profixed 9 D.Q.

- □ Channel Sample
- ⊗ Grab Sample of trench and float

Result W, Sn, Au, Ag, Bi, Sb, Hg.

Underlined – Geochemical Values. ppm. (or ppb for Au.) otherwise assay % Values (or oz/ton for Au, Ag.)

### SOIL & SEDIMENT SAMPLING

- ○ Soil Sample — Sample No. 007–165
- △ Stream Sediments — Sb, Sn, Ag, W, Hg, Au.

SHEET INDEX

| | | | |
|---|---|---|---|
| | 3 | 2 | 1 |
| 4 | 5 | 6 | 7 |
| 11 | 10 | 9 | 8 |
| 12 | 13 | | |

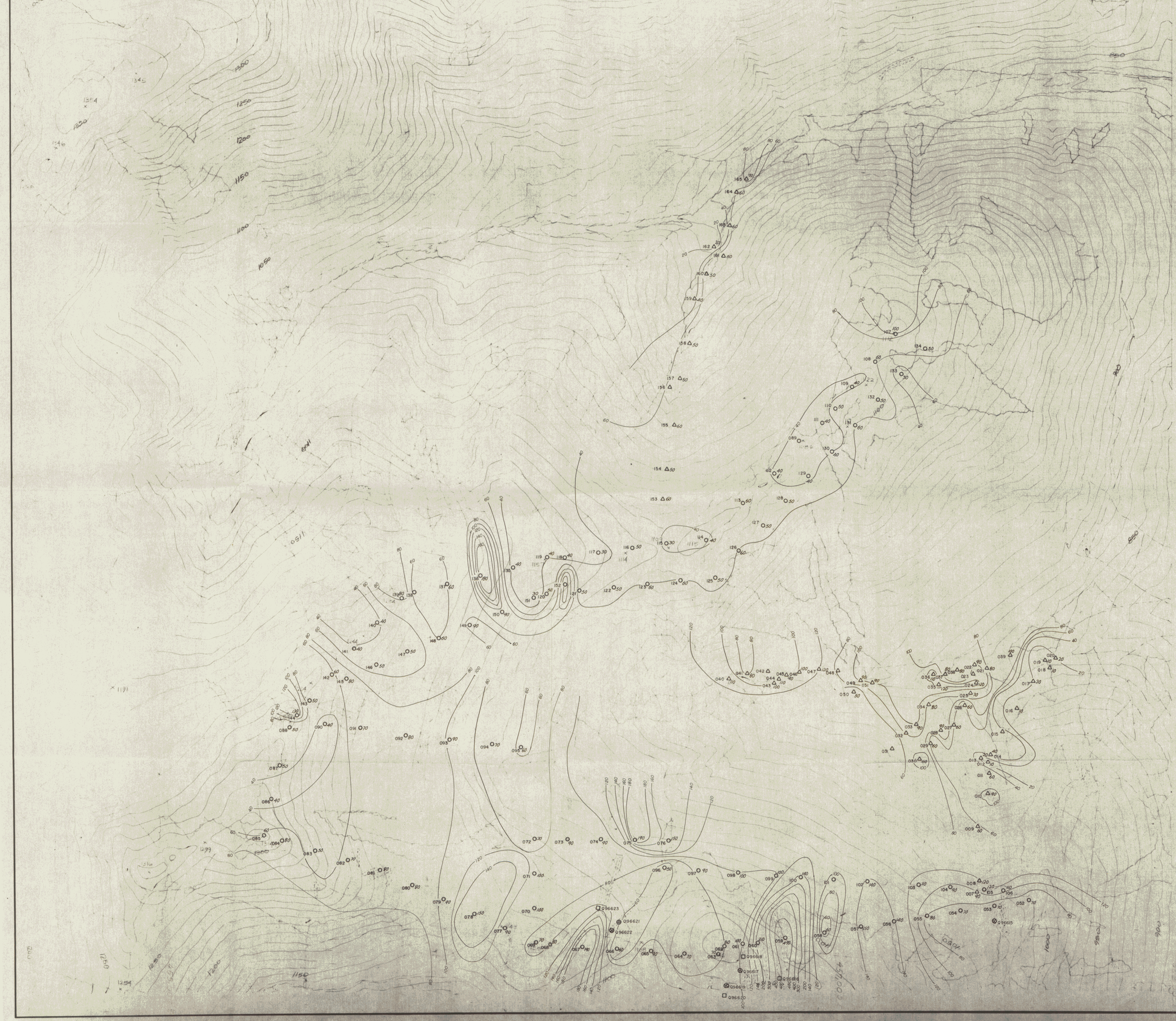
CANADA TUNGSTEN MINING CORP. LTD.

# DUBLIN GULCH PROJECT
YUKON TERRITORY – 1979

# GILL GULCH AREA
## RECONNAISSANCE GEOLOGY AND GEOCHEMICAL SURVEY

METRES 0 50 100 150 200 250 — FEET 0 416.6 833.2 1249.8

| | |
|---|---|
| SCALE: IN : 1 5000 | NTS No. 106 D-4 |
| DATE: NOV 1979 | MAP No. 9 |
| DRAWN BY: ALTAIR | To accompany report: |
| GEOLOGY BY: B. HOWARD | 1979 DUBLIN GULCH PROJECT REPORT |




## LEGEND

CONTOUR INTERVAL: 20 PPB.

HIGHEST VALUE: 490 PPB.

LOWEST VALUE: 10 PPB.

BACKGROUND: 70 PPB.

TOTAL NUMBER OF SAMPLES: 154

△ STREAM SEDIMENTS SAMPLES: 54

○ SOIL SAMPLES: 100

GEOCHEMISTRY
ROCK SAMPLING.

Soil and stream sediments samples all profixed 9D.Q.

□ Channel Sample

⊗ Grab Sample of trench and float.

SOIL & SEDIMENT SAMPLING.

○ Soil Sample
△ Stream Sediments
Sample No.007-165

SHEET INDEX

| | | | |
|---|---|---|---|
| | 3 | 2 | 1 |
| 4 | 5 | 6 | 7 |
| 11 | 10 | 9 | 8 |
| 12 | 13 | | |

CANADA TUNGSTEN MINING CORP. LTD.

# DUBLIN GULCH PROJECT
YUKON TERRITORY-1979

# GILL GULCH AREA
GEOCHEMICAL SURVEY
## MERCURY (Hg) RESULTS

METRES 0 50 100 150 200 250
FEET 0 416.6 833.2 1249.8

| | |
|---|---|
| SCALE IN 1:5000 | NTS No. 106 D-4 |
| DATE DEC., 1979. | MAP No. 10 |
| DRAWN BY ALTAIR. | To accompany report: |
| COMPILATION BY: WILSON GEWARGIS | 1979 DUBLIN GULCH PROJECT REPORT |

36+250E.

36+375E.

36+550E.

36+125E.

35+975E.

EAST TIN DOME

WEST TIN DOME

D.D.H. 80-1
AZIMUTH 215°
INCLINATION 70°
0.04% $WO_3$

D.D.H. 80-2
AZIMUTH 090°
INCLINATION 70°

D.D.H. 80-3
AZIMUTH 270°
INCLINATION 70°

>1000 ppm Sn
78 Cu, 22 Pb, 8 Zn, 28 As

>1000 PPM Sn
104 Cu, 50 Pb, 24 Zn, 70 As

SEE INSET MAP No.

ANN GULCH

## LEGEND

ROCK TYPES

- BROWN PHYLLITE
- BLACK PHYLLITE
- BROWN QUARTZITE MYLONITE
- GRAY QUARTZITE MYLONITE
- MILKY VEIN QUARTZ
- PURPLE META ARKOSE

STRUCTURES - SYMBOLS AND ABBREVIATIONS

- TRENCH FLOAT
- FLOAT
- bx BRECCIA
- lim LIMONITE
- OUTCROP
- DEFINED GEOLOGICAL CONTACT
- APPROXIMATE GEOLOGICAL CONTACT
- FOLIATION - CLEAVAGE OR SCHISTOSITY
- COMPOSITIONAL LAYERING
- STRIKE OF FLOAT
- MINOR FOLD AXIAL PLANE
- CRENULATION LINEATION WITH TREND & PLUNGE
- HORIZONTAL LINEATION
- MINOR FOLD AXIS
- NORMAL FAULT
- THRUST FAULT
- BRECCIA ZONE
- TALUS PILE
- CAVED ADIT
- ROAD IN GOOD REPAIR
- ABANDONED ROAD
- 1945 TRENCH
- 1978 TRENCH
- DEPRESSION
- 4-10 PICKET: TRAVERSE 4 STATION 10 (BY H. ARIK)

GEOCHEMISTRY

- 930 0 10,5, <10, 0.1 GEOCHEMICAL SAMPLE TUNGSTEN, TIN, GOLD (PPB), SILVER
- • OR ⊢⊣ Q-21 CHANNEL ROCK SAMPLE
- □ ROCK GEOCHEMICAL BY H. ARIK '78

N

CANADA TUNGSTEN MINING CORP. LTD.

# DUBLIN GULCH PROJECT
YUKON TERRITORY - 1979

# TIN DOME AREA
## DETAILED GEOLOGY

METRES 0 10 20 30 40 50 FEET

| | |
|---|---|
| SCALE: IN : 1:1000 | NTS No. 106 D-4 |
| DATE: MARCH, 1980 | MAP No. II |
| DRAWN BY: ALTAIR | To accompany report: |
| GEOLOGY BY: B. HOWARD | 1979 DUBLIN GULCH PROJECT REPORT |




# LEGEND

## ROCK TYPES

- BROWN PHYLLITE
- BLACK PHYLLITE
- BROWN QUARTZITE MYLONITE
- MILKY VEIN QUARTZ
- TOURMALINIZED BLACK PHYLLITE DARK GREEN WITH CHLORITE PYRITE MINOR CASSITERITE

## STRUCTURE - SYMBOLS AND ABBREVIATIONS

- ⊙ PICKET
- 70° / 55° FOLIATION, WITH STRIKE AND DIP
- 40° STRIKE OF TOURMALINIZATION
- 45° STRIKE OF AXIAL PLANE OF MINOR FOLD
- 128° 16° LINEATION, TREND AND PLUNGE
- 154° 14° MINOR FOLD, TREND AND PLUNGE OF AXIS

## GEOCHEMISTRY

Q-52 0.12 0.01 0.03 CHANNEL ROCK SAMPLE, PREFIXED 968
SAMPLE No. (PREFIXED 968) %Sn, %$WO_3$, Ag OZ/TON

(ALSO GOLD NOTED FOR Q-43
AND GOLD, LEAD, AND ZINC FOR Q-49)

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DUBLIN GULCH PROJECT
YUKON TERRITORY - 1979

INSET MAP No.

# TIN DOME AREA
# CHANNEL SAMPLE LOCATION

METRES 0 1 2 SCALE 3 4 5 METRES

| | |
|---|---|
| SCALE: IN: 1:100 | NTS No. 106 D-4 |
| DATE: MARCH, 1980 | MAP No. 12 |
| DRAWN BY: ALTAIR | To accompany report 1979 |
| GEOLOGY BY: B. HOWARD | DUBLIN GULCH PROJECT REPORT |

458,000E 459,000E 460,000E 461,000E

7,103,000N 7,102,000N 7,101,000N

D.G. CLAIMS

TIN DOME FAULT ZONE

BOB CLAIMS

FISHER FAULT

D.G. CLAIMS

D.G. CLAIMS BLOCK

D.G. & SMOKY CLAIMS

D.G. & SMOKY CLAIMS

HAGGART CREEK

DUBLIN GULCH

Ann Gulch

4x4 TRUCK ROAD

CAMP

DDH 80-1

DDH 80-2

DDH 80-3

9DQ 001 3.6, <10

9DQ 002 29, 12, 20

9DQ 003 11, 1, <10

9DQ 004 4, 28, <10

9DQ 005 9, 1, 10

9DQ 006 7, 1, <10

72951A Au 0.274 oz/T. Ag 3.13 oz/T.

72952A Au 0.05 oz/T. Ag 7.06 oz/T.

36+800E 36+700E 36+550E 36+375E 36+250E 36+125E 35+975E 35+825E 12+100N

## LEGEND

- Outcrop — O: Phyllite, Oa: Buff phyllite ± andalusite (brown), Ob: Graphitic phyllite slate (black), Od: Silver phyllite, Oe: Graphitic quartzite and argillite.
- Proposed diamond drill hole 1980
- Rock geochemistry sample by H. Arik 1978 Sn >1000 ppm
- Area of geological interest (tourmalinized black-phyllite) for details see Map ____
- Thrust fault
- Foliation – cleavage or schistosity
- Main breccia zone
- Fault (indefinite)
- Cross section
- Cominco adit 1945
- Tin geochemistry contour Low 2ppm High >28ppm
- 77951 A, 77952 A — Rock samples
- 9DQ 001 — Stream sediments sample Sn(ppm), W(ppm), Au(ppb)
- Contour lines (contour interval 10 metres)
- Drainage
- 4x4 Truck road
- 43 — Claim No.

NOTE:

FOR DETAILS SEE MAPS 11, 12

TIN GEOCHEMISTRY SURVEY

CANADA TUNGSTEN MINING CORP. LTD.

DUBLIN GULCH PROJECT
YUKON TERRITORY – 1979

# TIN DOME
# GEOLOGICAL COMPILATION MAP

50 0 50 100 150 200 250 M.

| | |
|---|---|
| SCALE IN: 1:5000 | NTS No. 106 D-4 |
| DATE: MARCH, 1980 | MAP No. 13 |
| DRAWN BY: EDCO. LTD. | To accompany report |
| REVISED BY: | COMPILED BY: Wilson Gewargis |

CANADA TUNGSTEN MINING CORP LTD

# 1979-DUBLIN GULCH CLAIMS
## GOLD-QUARTZ VEIN FISSURE SYSTEM
## GENERAL GEOLOGY AND LOCATION MAP

METRES 0 50 100 150 200 250 0 16 66 32 32 49 98 FEET

SCALE 1" = 1000' 1cm = 10m — N.T.S. No. 105 O/4

DRAWN BY: ALTAIR - E.Z — DATE: NOV. 1979 — MAP No. 14

GEOLOGY BY: S.C.B. — To accompany report

1979 DUBLIN GULCH PROJECT REPORT

SHEET INDEX

| | | | |
|---|---|---|---|
| | | | 12 |
| | | 10 | 11 |
| 7 | 8 | 9 | |
| 4 | 5 | | 6 |
| 1 | 2 | 3 | |

### INSET MAPS

A Detailed trench geology and geochemistry

B Alluvial underground geology and geochemistry

C BEAVER underground geology and geochemistry

D Detailed trench geology

### NOTES

Test pits, drill holes, creeks, roads have been mapped at higher scales. Both geology and geochemistry maps are available

### SAMPLES

9625SA Rock chip or grab sample number

VABETH A Rock chip sample across width of vein, location with sample number

COMPLETE A Composite rock chip sample across / metre width centred on vein, vein material included in sample

### LITHOLOGIES

14 GRANODIORITE - Coarse grained with biotite

7 METASEDIMENTS - Mainly quartzite with minor calc-silicate, phyllites and skarn

QUARTZ VEIN - Quartz ± green clay-like material ± arsenopyrite ± scorodite ± pyrrhotite ± limonite native gold vein and host indicated

### SYMBOLS

Outcrop

Bedding - strike 137° dip 20°NE

Vein - dip and dip direction indicated

Creek

Proposed Diamond Drill Hole — DDH-80-03

Adit

Shaft

Underground workings projected to surface

Open cut

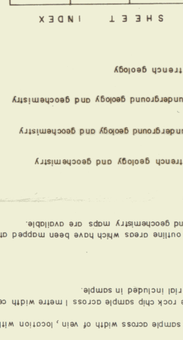
Trench

Proposed Trench

Reexcavated Trench

Road

Claim posts




OLD EAGLE GROUP

OLD BLUE LEAD GROUP

OLD STEWART AND CATTO GROUP

VICTORIA OR MOOSE VEIN TUNNEL

BEAVER VEIN

ADIT

GREEN VEIN TUNNEL

OLD OLIVE GROUP

OLD SHAMROCK GROUP

DUBLIN GULCH

Olive Creek

Dup

Pup

Gully

Fulcrum

Quartz

Creek

Gulch

Dublin

Cirque

Stewart

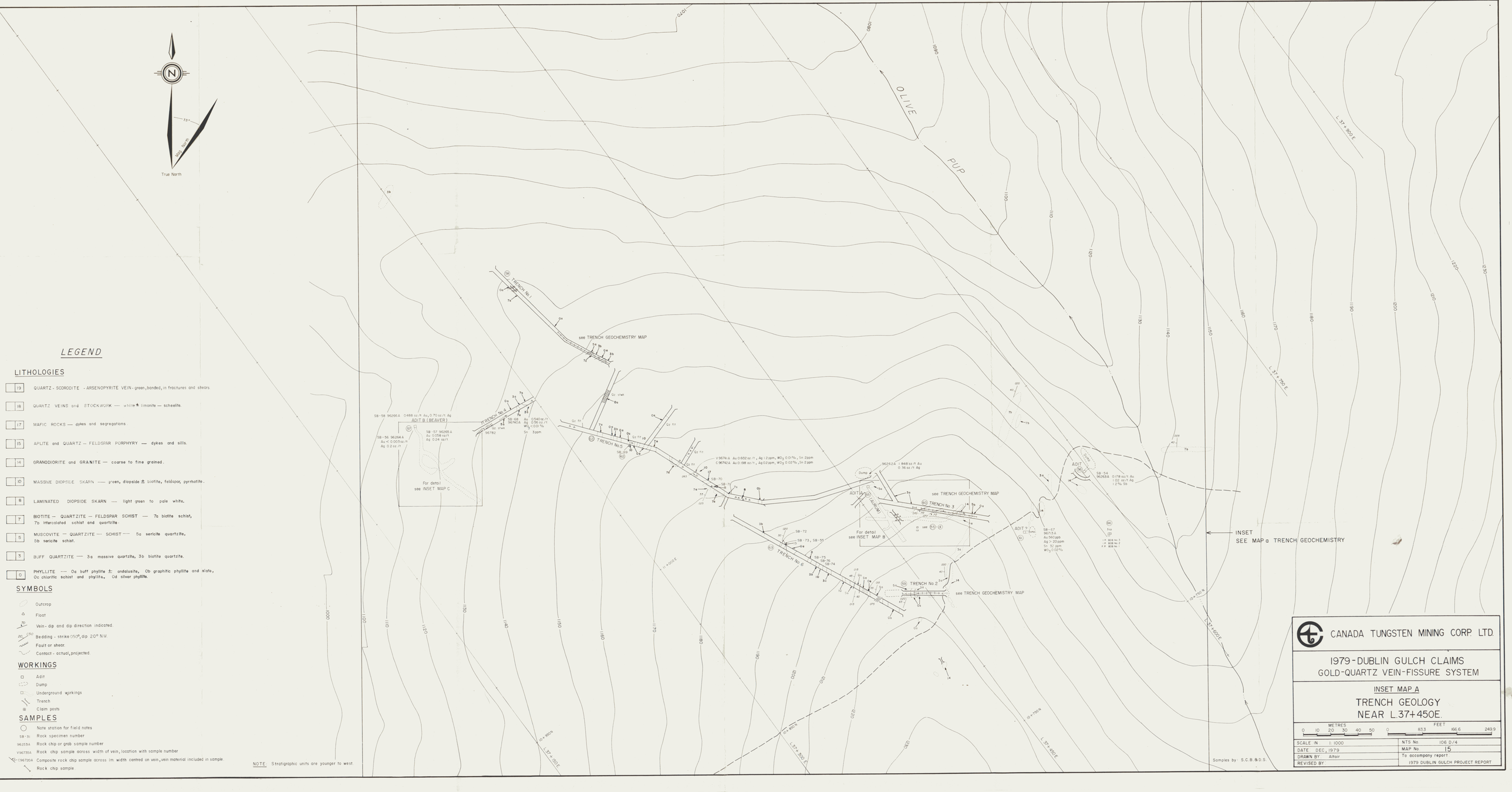
Creek

Ridge

Pup

Pup

Pup


N
33°
Magnetic North
True North
OLIVE PUP
TRENCH No.1
TRENCH No.5
TRENCH No.5
TRENCH No.3
TRENCH No.6
TRENCH No.2
ADIT B (BEAVER)
ADIT
ADIT
ADIT
ADIT
ADIT
58-58 96266A 0.488 oz/t Au, 0.70 oz/t Ag
58-57 96265A Au 0.058 oz/t Ag 0.24 oz/t
58-56 96264A Au < 0.003 oz/t Ag 0.2 oz/t
58-69 96782
58-68 96782A Ag 0.540 oz/t Au 0.56 oz/t WO3 0.05 % Sn 3ppm
58-70
58-71
58-72
58-73, 58-55
58-75
58-76
58-74
V96741A Au 0.602 oz/t, Ag 1.2 ppm, WO3 0.01%, Sn 22ppm
C96742A Au 0.198 oz/t, Ag 0.2 ppm, WO3 0.02%, Sn 22ppm
96262A 1.848 oz/t Au 0.36 oz/t Ag
58-54 96263A 0.178 oz/t Au 1.0 oz/t Ag 1.2% Sn
58-67 96733A Au 560 ppb Ag 3-20 ppm Sn 32 ppm WO3 0.02%
see TRENCH GEOCHEMISTRY MAP
see TRENCH GEOCHEMISTRY MAP
see TRENCH GEOCHEMISTRY MAP
see TRENCH GEOCHEMISTRY MAP
For detail see INSET MAP C
For detail see INSET MAP B
INSET SEE MAP a TRENCH GEOCHEMISTRY
L.37+900E
L.37+750E
L.37+600E
L.37+450E
L.37+300E
0+750N
0+600N
0+450N
0+300N
0+150N
0+000
0+150S
0+300S
0+450S
0+600S
0+750S
1+000S
1+250S
1+500S
1+750S
2+000S
2+250S
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5+750S
6+000S
6+250S
6+500S
6+750S
7+000S
7+250S
7+500S
7+750S
8+000S
8+250S
8+500S
8+750S
9+000S
9+250S
9+500S
9+750S
10+000S
10+250S
10+500S

L. 37+450 E.

L. 37+600 E.

L. 37+300 E.

11+350 N.

11+250 N.

11+100 N.

11+050 N.

10+900 N.

10+850 N.

N

33°

MAG. NORTH

TRENCH No. 1

| | Au PPB | Ag PPM | $WO_3$ % | Sn PPM |
|---|---|---|---|---|
| 96262 | 5 | 0.1 | 0.02 | 1 |
| 96270 | 15 | 0.1 | 0.05 | 1 |
| 96271 | 5 | 0.1 | 0.03 | 1 |
| 96272 | 5 | 0.1 | 0.03 | 1 |
| 96273 A | 5 | 0.1 | 0.10 | 1 |
| 96274 A | 5 | 0.1 | 0.03 | 1 |
| 96275 A | 5 | 0.1 | 0.02 | 2 |
| 96751 A | 60 | 0.1 | 0.05 | 6 |
| 96752 A | 25 | 0.1 | 0.06 | 1 |
| 96753 A | <5 | 0.1 | 0.03 | 1 |
| 96754 A | <5 | 0.1 | 0.02 | 1 |
| 96755 A | 10 | 0.1 | 0.04 | 1 |
| 96756 A | 20 | 0.1 | 0.02 | 1 |
| 96757 A | 145 | 0.1 | 0.03 | 1 |
| 96758 A | 20 | 0.1 | 0.05 | 1 |

3m Composite

| | Au | Ag | $WO_3$ | Sn |
|---|---|---|---|---|
| 96267A | 5 PPB, | 0.1 PPM, | 0.02 %, | 1 PPM |
| 96268A | 5 PPB, | 0.1 PPM, | 0.01 %, | 1 PPM |

TRENCH No. 1

96269 96270 96271 96272 96273A 96274A 96275A 96752A 96753A 96754A 96755A 96756A 96757A 96758A

1m Composite
96740A Au 0.540 oz/T
Ag 0.56 oz/T
$WO_3$ <0.01 %
Sn 3 PPM

TRENCH No. 4

ADIT B (BEAVER)

1m Composite
96782 Au <0.003 oz/T
$WO_3$ 0.05 %
Sn <0.01 %

TRENCH No. 5

1m Composite 96742A Au 0.198 oz/T, Ag 0.12 oz/T, $WO_3$ 0.02%, Sn 2 PPM

Vein 96741A Au 0.602 oz/T, Ag 0.10 oz/T, $WO_3$ 0.01%, Sn 2 PPM

ADIT A (AURUM)

TRENCH No. 3

96712A 96711A 96710A 96709A 96708A 96707A 96706A 96705A 96704A 96703A 96702A 96701A 96775A 96774A 96773A

TRENCH No. 3

3m COMPOSITES Au

| | |
|---|---|
| 96712 A | <0.003 oz/T |
| 96711 A | 0.022 oz/T |
| 96710 A | <0.003 oz/T |
| 96709 A | <0.003 oz/T |
| 96708 A | <0.003 oz/T |
| 96707 A | <0.003 oz/T |
| 96706 A | <0.003 oz/T |
| 96705 A | <0.003 oz/T |
| 96704 A | <0.003 oz/T |
| 96703 A | <0.003 oz/T |
| 96702 A | <0.003 oz/T |
| 96701 A | <0.003 oz/T |
| 96775 A | 0.004 oz/T |
| 96774 A | 0.014 oz/T |
| 96773 A | 0.042 oz/T |

ADIT

ADIT?

TRENCH No. 6

TRENCH No.2

96769A 96767A 96771A 96770A 96768A 96766A 96765A 96764A 96763A 96762A 96761A 96759A 96772A

TRENCH No.2

| Im COMPOSITES *ASSAYED | Au oz/T | ACROSS WIDTH OF VEIN $WO_3$% | Sn PPM | Ag PPM |
|---|---|---|---|---|
| 96772A | 0.064 oz/T | | | |
| 96759A | *0.106 oz/T | <0.01 | 1 | 0.1 |
| 96760A | 0.055 oz/T | 0.01 | 1 | 3.4 |
| 96761 A | *0.128 oz/T | <0.01 | 1 | 1.4 |
| 96762 A | *0.220 oz/T | <0.01 | 1 | 3.8 |
| 96763A | 0.060 oz/T | <0.01 | 1 | 5.4 |
| 96764 A | 0.011 oz/T | <0.01 | 1 | 1.2 |
| 96765 A | *0.422 oz/T | <0.01 | 1 | 0.4 |
| 96767 A | *0.746 oz/T | <0.01 | 1 | 0.4 |
| 96766 A | 0.012 oz/T | 0.01 | 1 | 3.8 |
| 96769 A | 0.003 oz/T | | | |
| 96768 A | 0.010 oz/T | <0.01 | 1 | 0.1 |
| 96770 A | 0.007 oz/T | | | |
| 96771 A | *0.250 oz/T | | | |

## LEGEND

| | |
|---|---|
| 96253A | Rock chip or grab sample number. |
| V96735A | Rock chip sample across width of vein, location with sample number. |
| C96720A | Composite rock chip sample across 1m width centred on vein, vein material included in sample. |
| | Rock chip sample |

NOTE: Gold values are calculated using 34300 PPB = troy ounce.

Samples by S.C.B. & D.S.

CANADA TUNGSTEN MINING CORP. LTD.

# 1979 - DUBLIN GULCH CLAIMS
## GOLD-QUARTZ VEIN-FISSURE SYSTEM

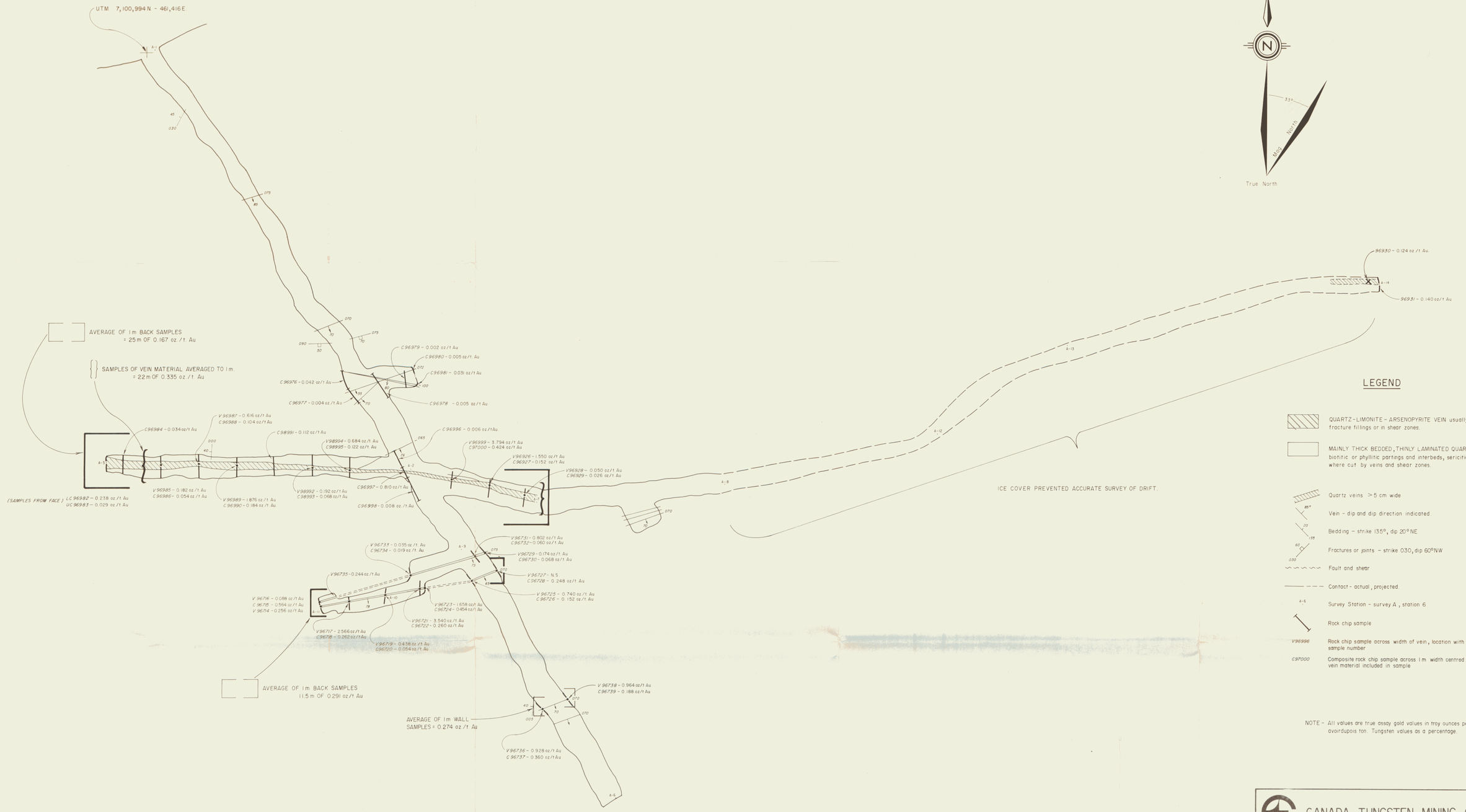
INSET MAP a

## TRENCH GEOCHEMISTRY
## NEAR L. 37 + 450 E.

METRES 0 10 20 30 40 50

FEET 0 83.3 166.6 249.9

| | |
|---|---|
| SCALE: IN: 1:1000 | NTS No. 106 D - 4 |
| DATE: DEC., 1979 | MAP No. 16 |
| DRAWN BY: Altair | To accompany report: |
| REVISED BY: | 1979 DUBLIN GULCH PROJECT REPORT |




NOTE – All values are true assay gold values in troy ounces per avoirdupois ton. Tungsten values as a percentage.

SAMPLES BY: S.C.B & D.C

CANADA TUNGSTEN MINING CORP. LTD.

# 1979 - DUBLIN GULCH CLAIMS
## GOLD-QUARTZ VEIN-FISSURE SYSTEM

INSET MAP B

## AURUM ADIT
## UNDERGROUND GEOLOGY AND GEOCHEMISTRY

METRES 0 1 2 3 4 5 — FEET

| | |
|---|---|
| SCALE IN: 1 : 100 | NTS No. 106 D/4 |
| DATE: NOV., 1979 | MAP No. 17 |
| DRAWN BY: ALTAIR | To accompany report. |
| REVISED BY: | 1979 DUBLIN GULCH PROJECT REPORT |







## LEGEND

- QUARTZ - LIMONITE - ARSENOPYRITE VEIN usually banded, as fracture fillings or in shear zones.
- MAINLY THICK BEDDED, THINLY LAMINATED QUARTZITE with biotitic or phyllitic partings and interbeds, sericitic and limonitic where cut by veins and shear zones.
- Quartz veins > 5 cm wide
- Vein - dip and dip direction indicated
- Bedding - strike 135°, dip 20° NE
- Fault or shear
- Contact actual, projected
- Rock chip sample

NOTE - All values are true assay gold values in troy ounces per avoirdupois ton. Tungsten values as a percentage.

SAMPLES BY: D.C. & D.S.

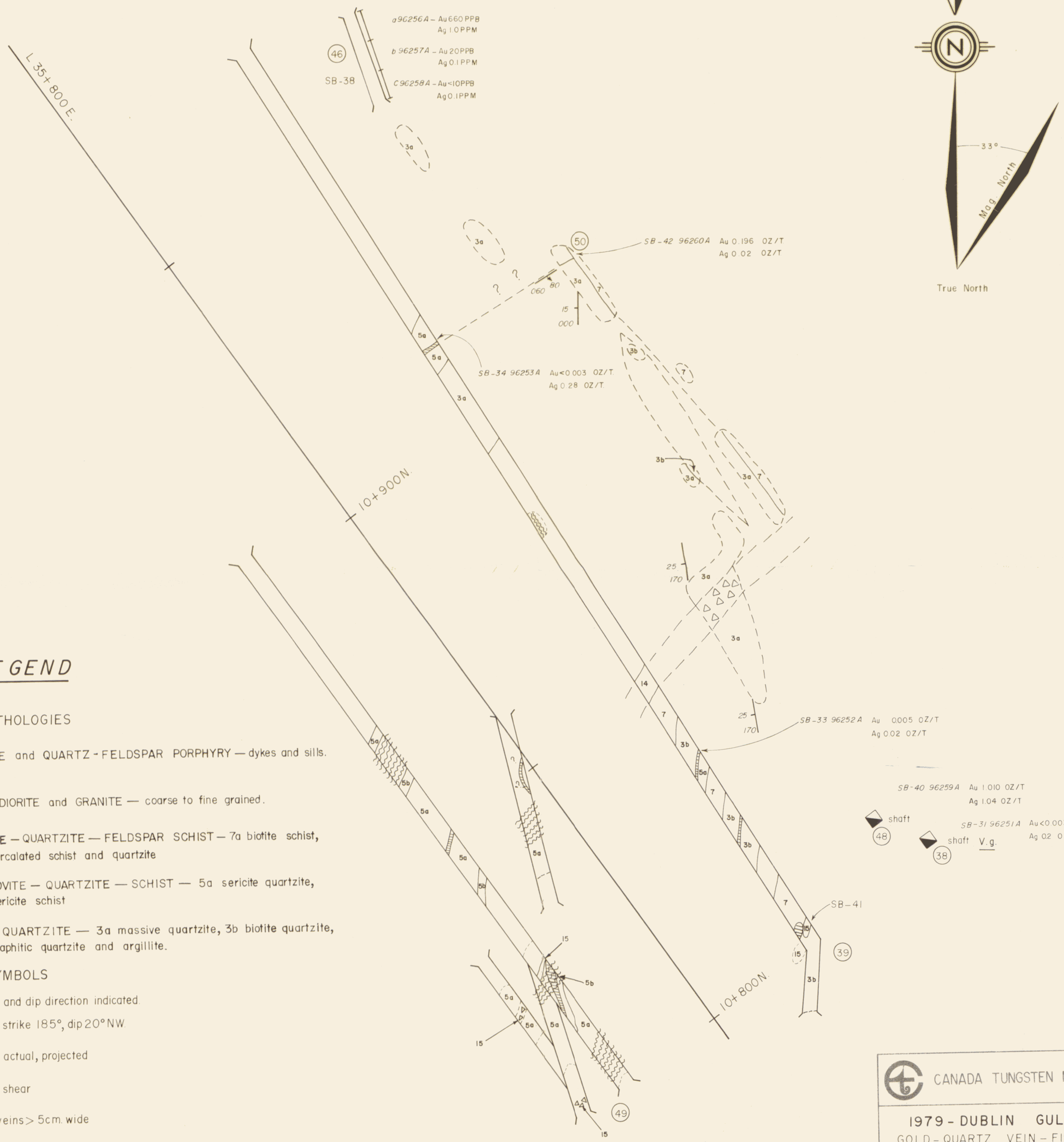
CANADA TUNGSTEN MINING CORP. LTD.

# 1979 - DUBLIN GULCH CLAIMS
## GOLD-QUARTZ VEIN-FISSURE SYSTEM

### INSET MAP C
## BEAVER ADIT
## UNDERGROUND GEOLOGY AND GEOCHEMISTRY

METRES 0 1 2 3 4 5 — FEET

| | |
|---|---|
| SCALE: IN: 1:100 | NTS No. 106 D/4 |
| DATE: NOV., 1979 | MAP No. 18 |
| DRAWN BY: ALTAIR | To accompany report: |
| REVISED BY: | 1979 DUBLIN GULCH PROJECT REPORT |




## LEGEND

### LITHOLOGIES

- 15 — APLITE and QUARTZ-FELDSPAR PORPHYRY — dykes and sills.
- 14 — GRANODIORITE and GRANITE — coarse to fine grained.
- 7 — BIOTITE — QUARTZITE — FELDSPAR SCHIST — 7a biotite schist, 7b intercalated schist and quartzite
- 5 — MUSCOVITE — QUARTZITE — SCHIST — 5a sericite quartzite, 5b sericite schist
- 3 — BUFF QUARTZITE — 3a massive quartzite, 3b biotite quartzite, 3c graphitic quartzite and argillite.

### SYMBOLS

- 60 — vein-dip and dip direction indicated
- 20 / 185 — bedding - strike 185°, dip 20° NW
- contact - actual, projected
- fault or shear
- quartz veins > 5cm. wide
- float
- outcrop

### WORKINGS

- shaft

### SAMPLES

- (46) note station for field notes
- SB-31 rock specimen number
- 96253A rock chip or grab sample number.

CANADA TUNGSTEN MINING CORP. LTD.

# 1979 - DUBLIN GULCH CLAIMS

GOLD - QUARTZ VEIN - FISSURE SYSTEM

## INSET MAP D

## TRENCH GEOLOGY NEAR L 35 + 800 E.

0 5 10 15 20 25 METRES

| | |
|---|---|
| SCALE IN 1 500 | NTS No. 106 D/4 |
| DATE NOV., 1979 | MAP No. 19 |
| DRAWN BY ALTAIR | To accompany report 1979 |
| GEOLOGY BY S.C.B. | DUBLIN GULCH PROJECT REPORT |

462,750 E. | 463,000 E. REFERENCE LINE | 463,250 E. | 463,500 E.

7,101,000 N.

7,100,750 N.

7,100,500 N.

7,100,250 N.

7,100,000 N.

BASELINE 10+000 N AZ 054°

38+500 E | 38+650 E | 38+350 E

INTRUSIVE CONTACT

40 ppm | 60 ppm | 400ppm | 150 ppm | 180 ppm

1370 | 1380 | 1390 | 1400 | 1410 | 1420 | 1430

SKARN FLOAT

P' | O' | A | A' | B | B' | C | C' | D | D' | E | E' | F | F' | G | G' | H | H' | I | I' | J | J' | K | K'

79-1 | 79-2 | 79-6 | 79-7 | 79-8 | 79-9 | 79-10 | 79-11 | 79-12 | 79-13 | 79-14 | 79-15 | 79-16 | 79-17 | 79-18 | 79-19 | 79-20 | 79-21

80-1 | 80-2 | 80-3 | 80-4 | 80-5 | 80-6 | 80-7 | 80-8 | 80-9 | 80-10 | 80-11 | 80-12 | 80-13 | 80-14 | 80-15 | 80-16 | 80-17 | 80-18 | 80-19 | 80-20 | 80-21 | 80-22 | 80-23 | 80-25 | 80-26 | 80-27 | 80-28 | 80-29 | 80-30 | 80-31 | 80-32 | 80-33 | 80-34

70 M. | 101 M. | 88 M. | 71 M. | 78 M. | 83 M. | 108 M.

PROJECTED TO SURFACE UPPER ZONE

PROJECTED TO SURFACE LOWER ZONE

INDEX

## LEGEND

- 79-1 — DIAMOND DRILL HOLE DRILLED IN 1979
- 80-3 — PROPOSED DIAMOND DRILL HOLE 1980
- SKARN FLOAT ON SURFACE WITH SCHEELITE REPRESENT THE PROJECTION OF THE UPPER ZONE TO SURFACE
- x 018 $WO_3$ — RESULT OF CHANNEL SAMPLING TAKEN IN 1979 BY W. GEWARGIS & B. HOWARD
- 60 ppm — GEOCHEMICAL ANOMALY FROM 1978 GEOCHEMICAL SOIL SURVEY
- 0.56 / 3.8m — GRADE $WO_3$ % / METERS — VALUE VERTICAL PROJECTED TO THE SURFACE FROM THE UPPER ZONE
- 0.30 / 47.4m — GRADE $WO_3$ % / METERS — VALUE VERTICAL PROJECTED TO THE SURFACE FROM THE LOWER ZONE
- 14 — GRANODIORITE INTRUSIVE
- 10 — MASSIVE DIOPSIDE SKARN
- PROJECTION OF THE UPPER ZONE TO SURFACE
- PROJECTION OF THE LOWER ZONE TO SURFACE

SHEET A

CANADA TUNGSTEN MINING CORP. LTD.

# DUBLIN GULCH PROJECT

YUKON TERRITORY-1979

## DIAMOND DRILL LOCATION PLAN AND GEOLOGICAL SECTIONS OF GARNET SKARN ZONE

METRES 0 10 20 30 40 50 — FEET 0 83.3 166.6 249.9

| | |
|---|---|
| SCALE: IN. = 1,000 | NTS No. 106 D-4 |
| DATE: FEB., 1980 | MAP No. 20 |
| DRAWN BY: Altair | To accompany report |
| GEOLOGY BY: W. GEWARGIS & B. HOWARD | 1979 DUBLIN GULCH PROJECT REPORT |

463,750 E.

464,000 E.

7,101,250 N.

7,101,000 N.

7,100,750 N.

14

L'

L

79 - 4

M'

M

79 - 3

N'

N

79-5

INTRUSIVE CONTACT

1370

1380

1390

1400

1410

1420

x 1389

x 1397

x 1402

x 1429

## LEGEND

14 — GRANODIORITE INTRUSIVE

79-5 — DIAMOND DRILL HOLE DRILLED IN 1979

A

B

INDEX

SHEET B

CANADA TUNGSTEN MINING CORP. LTD.

# DUBLIN GULCH PROJECT

YUKON TERRITORY-1979

# DIAMOND DRILL LOCATION PLAN AND GEOLOGICAL SECTIONS OF RAY GULCH SKARN ZONE

METRES 0 10 20 30 40 50

FEET 0 83.3 166.6 249.9

| | |
|---|---|
| SCALE: IN: 1:1,000 | NTS No. 106 D-4 |
| DATE: FEB., 1980 | MAP No. 21 |
| DRAWN BY: Altair | To accompany report: |
| GEOLOGY BY: W.GEWARGIS & B.HOWARD | 1979 DUBLIN GULCH PROJECT REPORT |

ELEVATION WEST

# VIEW LOOKING NORTH

REFERENCE LINE 463,000 E

EAST ELEVATION

1450 M
1400 M
1350 M
1300 M
1250 M
1200 M
1150 M
1100 M
1050 M

A'

A

80-2

79-8

Trench - 9 Vitreous diopside skarn
0.97% - 2.95% $WO_3$

14

10

100.0 m.

150 m

## probable ore reserves - upper zone

True thickness of mineralized zone = 12.7 m. (42.0 ft.)
Width (downdip lenght) = 80.0 m. (262.4 ft.)
Lenght distance along the strike = 50.0 m. (164.0 ft.)

Volume 42.0 x 262.4 x 164.0 = 180,741 $Ft^3$
Tonnage $\frac{180,741}{10}$ = 18,074.1 Tons
Grade 0.44 % $Wo_3$

Note: Assuming a tonnage factor of 10 cubic ft. of rock/ton of ore.

## LEGEND

OVERBURDEN

CRETACEOUS

15 APLITE DYKES

14 GRANODIORITE AND GRANITE

PRECAMBRIAN AND/OR PALEOZOIC
YUKON GROUP

MINERALIZED UNITS

11 GARNET SKARN GROSSULAR-DIOPSIDE MASSIVE ROCK

10 MASSIVE DIOPSIDE SKARN

9 VITREOUS SKARN QUARTZ-PLAGIOCLASE-GROSSULAR-SCHEELITE LAMINATED ROCK

8 LAMINATED DIOPSIDE SKARN LIGHT GREEN TO PALE WHITE

7 BIOTITE-QUARTZITE FELDSPAR SCHIST

4 GREEN QUARTZITE CALCITE-QUARTZ-TREMOLITE MASSIVE ROCK

1 WHITE TO PALE GREY MARBLE

FAULTS (DEFINITE, ASSUMED)

GEOLOGICAL CONTACTS (DEFINITE, ASSUMED)

DIAMOND DRILL HOLE No. - 1979

PROPOSED DIAMOND DRILL HOLE No. - 1980

0.5 $WO_3$% CORE ASSAYS

ORE MINERALIZATION

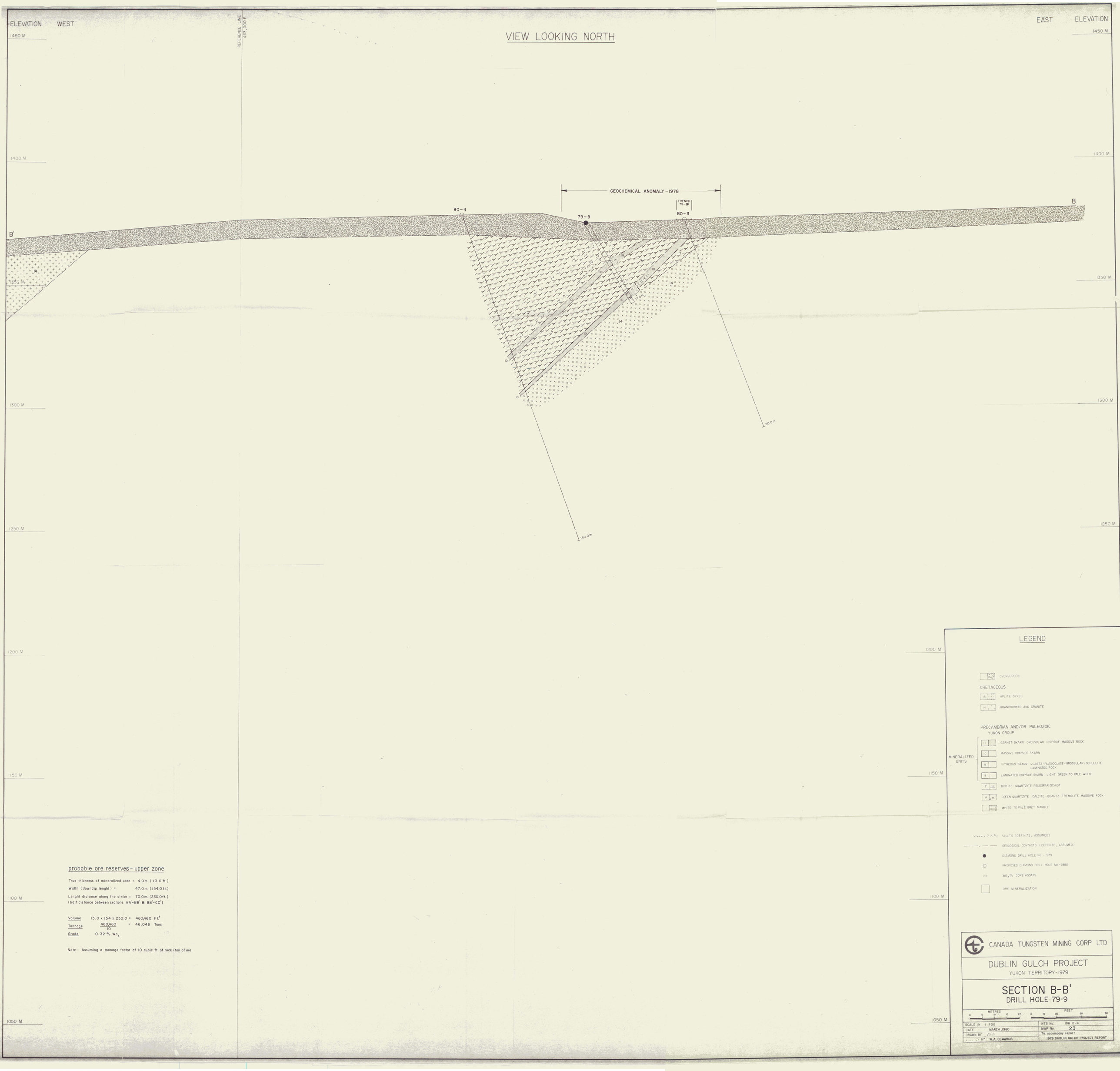
CANADA TUNGSTEN MINING CORP. LTD.

DUBLIN GULCH PROJECT
YUKON TERRITORY-1979

# SECTION A-A'
## DRILL HOLE 79-8

METRES 0 5 10 15 20 FEET 0 15 30 60 90

| | |
|---|---|
| SCALE IN 1:400 | NTS No. 106 D-4 |
| DATE MARCH, 1980 | MAP No. 22 |
| DRAWN BY: Atholl | To accompany report |
| GEOLOGY BY: W.A. GEWARGIS | 1979 DUBLIN GULCH PROJECT REPORT |




probable ore reserves - upper zone

True thickness of mineralized zone = 4.0 m. (13.0 ft.)

Width (downdip lenght) = 47.0 m. (154.0 ft.)

Lenght distance along the strike = 70.0 m. (230.0 ft.)
(half distance between sections AA'-BB' & BB'-CC')

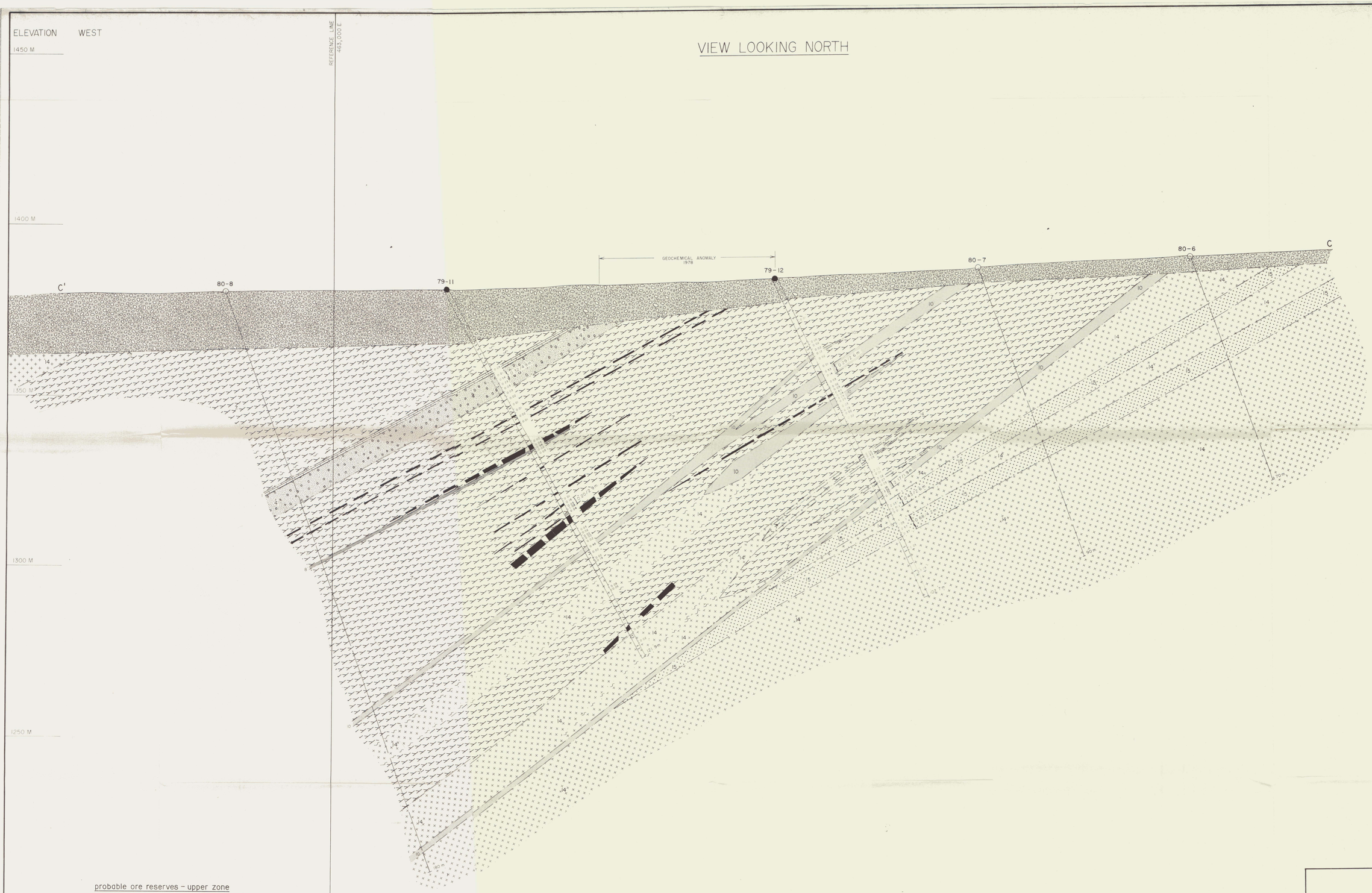
Volume 13.0 x 154 x 230.0 = 460,460 $Ft^3$

Tonnage $\frac{460,460}{10}$ = 46,046 Tons

Grade 0.32 % $Wo_3$

Note: Assuming a tonnage factor of 10 cubic ft. of rock/ton of ore.

# VIEW LOOKING NORTH




## probable ore reserves – upper zone

A True thickness of mineralized zone = 4.9m. ( 16.1 ft.)
Width (downdip lenght) = 75.0m. (246.1 ft.)
Lenght distance along the strike = 101.0m. (331.4 ft.)
(half distance between sections BB'–CC' & CC'–DD')

Volume 16.1 x 246.1 x 331.4 = 1,313,076.3 $Ft^3$
Tonnage $\frac{1,313,076.3}{10}$ = 131,307.63 Tons
Grade 0.32 % $Wo_3$

B True thickness of mineralized zone = 2.6m. ( 8.5 ft.)
Width (downdip lenght) = 45.0m. (148.0 ft.)
Lenght distance along the strike = 101.0m. (331.4 ft.)
(half distance between sections BB'–CC' & CC'–DD')

Volume 8.5 x 148.0 x 331.4 = 416,901.2 $Ft^3$
Tonnage $\frac{416,901.2}{10}$ = 41,690.12 Tons
Grade 0.29 % $Wo_3$

## probable ore reserves – lower zone

True thickness of mineralized zone = 14.5m. ( 47.6 ft.)
Width (downdip lenght) = 30.0m. ( 98.4 ft.)
Lenght distance along the strike = 101.0m. (331.4 ft.)
(half distance between sections BB'–CC' & CC'–DD')

Volume 47.6 x 98.4 x 331.4 = 1,552,224.5 $Ft^3$
Tonnage $\frac{1,552,224.5}{10}$ = 155,222.45 Tons
Grade 0.57 % $Wo_3$

## possible ore reserves – lower zone

True thickness of mineralized zone = 10.3m. ( 33.8 ft.)
Width (downdip lenght) = 131.0m. (429.8 ft.)
Lenght distance along the strike = 101.0m. (331.4 ft.)
(half distance betwee sections BB'–CC' & CC'–DD'

Volume 33.8 x 429.8 x 331.4 = 4,814,327.3 $Ft^3$
Tonnage $\frac{4,814,327.3}{10}$ = 481,432.73 Tons
Grade 0.39 % $Wo_3$

Note: Assuming a tonnage factor of 10 cubic ft. of rock/ton of ore.

## LEGEND

OVERBURDEN

CRETACEOUS

15 APLITE DYKES

14 GRANODIORITE AND GRANITE

13 BIOTITE GRANODIORITE

PRECAMBRIAN AND/OR PALEOZOIC
YUKON GROUP

MINERALIZED UNITS

11 GARNET SKARN: GROSSULAR–DIOPSIDE MASSIVE ROCK

10 MASSIVE DIOPSIDE SKARN

9 VITREOUS SKARN: QUARTZ–PLAGIOCLASE–GROSSULAR–SCHEELITE LAMINATED ROCK

8 LAMINATED DIOPSIDE SKARN: LIGHT GREEN TO PALE WHITE

7 BIOTITE–QUARTZITE FELDSPAR SCHIST

4 GREEN QUARTZITE: CALCITE–QUARTZ–TREMOLITE MASSIVE ROCK

1 WHITE TO PALE GREY MARBLE

FAULTS (DEFINITE, ASSUMED)

GEOLOGICAL CONTACTS (DEFINITE, ASSUMED)

DIAMOND DRILL HOLE No – 1979

PROPOSED DIAMOND DRILL HOLE No – 1980

0.5 $WO_3$% CORE ASSAYS

ORE MINERALIZATION

CANADA TUNGSTEN MINING CORP. LTD.

# DUBLIN GULCH PROJECT

YUKON TERRITORY–1979

## SECTION C-C'

DRILL HOLES 79-11, 79-12

METRES 0 5 10 15 20 — FEET 0 15 30 60 90

| | |
|---|---|
| SCALE IN : 1:400 | NTS No 106 D-4 |
| DATE MARCH, 1980 | MAP No 24 |
| DRAWN BY Altair | To accompany report |
| GEOLOGY BY: W.A. GEWARGIS | 1979 DUBLIN GULCH PROJECT REPORT |

# VIEW LOOKING NORTH

ELEVATION WEST

EAST ELEVATION

REFERENCE LINE 463,000 E

1450 M
1400 M
1350 M
1300 M
1250 M
1200 M
1150 M
1100 M
1050 M

D' 80-12 79-10 79-6 79-13 80-11 80-10 D

125.0m
90.0m
203.0m

## probable ore reserves – upper zone

True thickness of mineralized zone = 8.4m. (27.6 ft.)

Width (downdip lenght) = 124.0m. (406.8ft.)

Lenght distance along the strike = 88.0m. (288.7 ft.)
(half distance between sections CC'–DD' & DD'–EE')

Volume 27.6 x 406.8 x 288.7 = 3,241,431.2 $Ft^3$

Tonnage $\frac{3,241,431.2}{10}$ = 324,143.12 Tons

Grade 0.43 % $Wo_3$

## probable ore reserves – lower zone

True thickness of mineralized zone = 13.4m. ( 44.0 ft.)

Width (downdip lenght) = 87.0m. (285.4 ft.)

Lenght distance along the strike = 88.0m. (288.7 ft.)
(half distance between sections CC'–DD' & DD'–EE' )

Volume 44.0 x 285.4 x 288.7 = 3,625,379.1 $Ft^3$

Tonnage $\frac{3,625,379.1}{10}$ = 362,537.91 Tons

Grade 0.76 % $Wo_3$

## possible ore reserves – lower zone

True thickness of mineralized zone = 14.2m. (46.6 ft.)

Width (downdip lenght) = 125.0m. (410.0 ft.)

Lenght distance along the strike = 88.0m. (288.7 ft.)
(half distance between sections CC'–DD' & DD'–EE')

Volume 46.6 x 410.0 x 288.7 = 5,515,902.2 $Ft^3$

Tonnage $\frac{5,515,902.2}{10}$ = 551,590.22 Tons

Grade 0.64 % $Wo_3$

Note: Assuming a tonnage factor of 10 cubic ft. of rock/ton of ore.

## LEGEND

- OVERBURDEN

CRETACEOUS

- 15 APLITE DYKES
- 14 GRANODIORITE AND GRANITE

PRECAMBRIAN AND/OR PALEOZOIC
YUKON GROUP

MINERALIZED UNITS

- 11 GARNET SKARN: GROSSULAR-DIOPSIDE MASSIVE ROCK
- 10 MASSIVE DIOPSIDE SKARN
- 9 VITREOUS SKARN: QUARTZ-PLAGIOCLASE-GROSSULAR-SCHEELITE LAMINATED ROCK
- 8 LAMINATED DIOPSIDE SKARN: LIGHT GREEN TO PALE WHITE
- 7 BIOTITE-QUARTZITE FELDSPAR SCHIST
- 4 GREEN QUARTZITE: CALCITE-QUARTZ-TREMOLITE MASSIVE ROCK
- WHITE TO PALE GREY MARBLE

- FAULTS (DEFINITE, ASSUMED)
- GEOLOGICAL CONTACTS (DEFINITE, ASSUMED)
- DIAMOND DRILL HOLE No.-1979
- PROPOSED DIAMOND DRILL HOLE No.-1980
- 0.5 $WO_3$% CORE ASSAYS
- ORE MINERALIZATION

CANADA TUNGSTEN MINING CORP. LTD.

# DUBLIN GULCH PROJECT
YUKON TERRITORY-1979

# SECTION D-D'
## DRILL HOLES 79-13,79-6-79-10

METRES 0 5 10 15 20 FEET 0 15 30 60 90

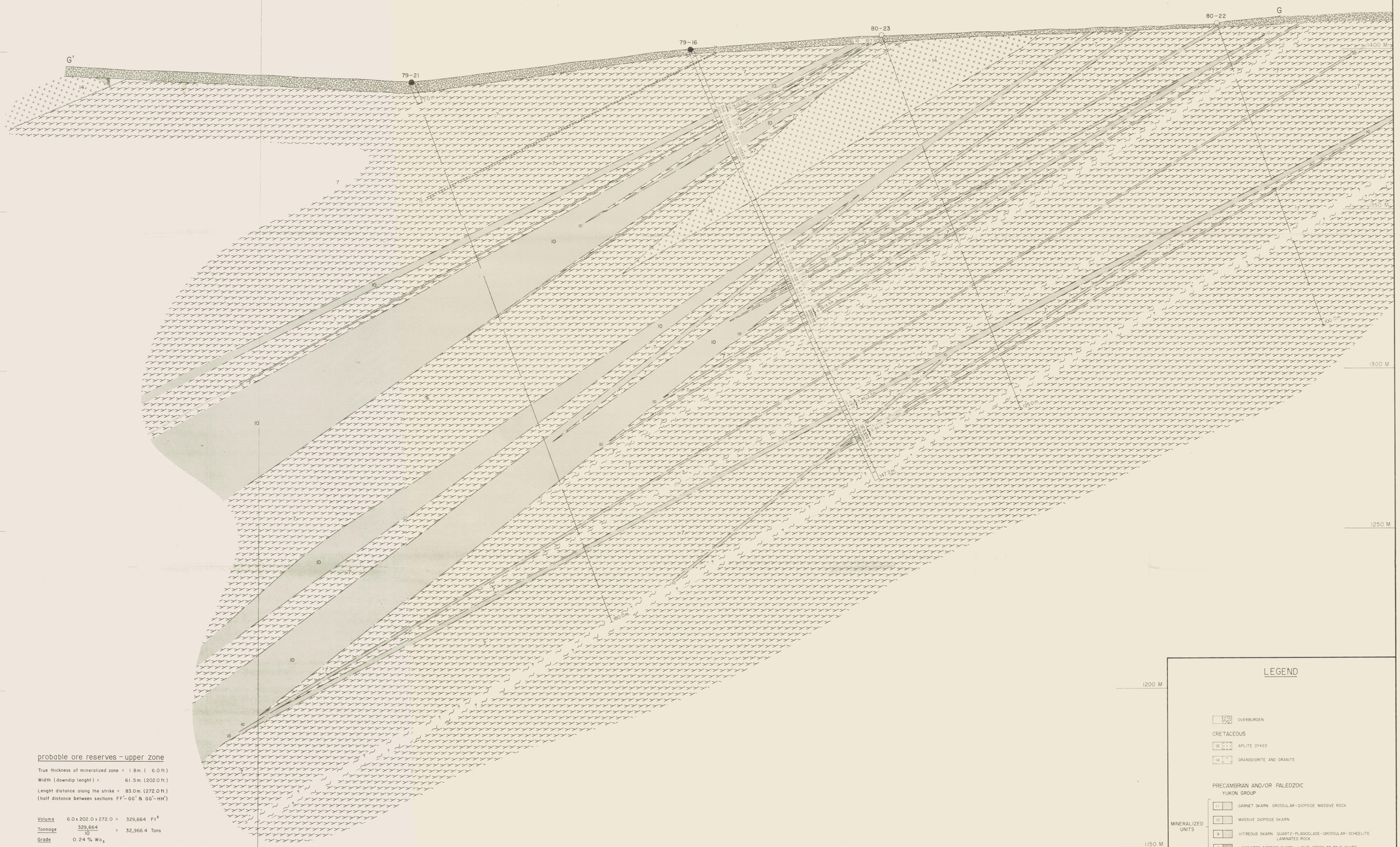
| | |
|---|---|
| SCALE IN : 1:400 | NTS No. 106 D-4 |
| DATE MARCH, 1980 | MAP No. 25 |
| DRAWN BY Altair | To accompany report: |
| GEOLOGY BY: W.A. GEWARGIS | 1979 DUBLIN GULCH PROJECT REPORT |

ELEVATION WEST

REFERENCE LINE 465,000 E

# VIEW LOOKING NORTH

EAST ELEVATION




## probable ore reserves – upper zone

True thickness of mineralized zone = 1.8m. ( 6.0 ft.)

Width (downdip lenght) = 61.5m. (202.0 ft.)

Lenght distance along the strike = 83.0m. (272.0 ft.)
(half distance between sections FF'–GG' & GG'–HH')

Volume 6.0 x 202.0 x 272.0 = 329,664 $Ft^3$

Tonnage $\frac{329,664}{10}$ = 32,966.4 Tons

Grade 0.24 % $Wo_3$

## probable ore reserves – lower zone

True thickness of mineralized zone = 3.0m. ( 10.0 ft.)

Width (downdip lenght) = 30.0m. ( 98.0 ft.)

Lenght distance along the strike = 83.0m. (272.0 ft.)
(half distance between sections FF'–GG' & GG'–HH')

Volume 10.0 x 98.0 x 272.0 = 266,560 $Ft^3$

Tonnage $\frac{266,560}{10}$ = 26,656.0 Tons

Grade 0.90 % $Wo_3$

## possible ore reserves – lower zone

True thickness of mineralized zone = 3.0m. ( 10.0 ft.)

Width (downdip lenght) = 166.0m. (545.0 ft.)

Lenght distance along the strike = 83.0m. (272.0 ft.)
(half distance between sections FF'–GG' & GG'–HH')

Volume 10.0 x 545.0 x 272.0 = 1,482,400 $Ft^3$

Tonnage $\frac{1,482,400}{10}$ = 148,240.0 Tons

Grade 0.90 % $Wo_3$

Note: Assuming a tonnage factor of 10 cubic ft. of rock/ton of ore.

## LEGEND

- OVERBURDEN
- CRETACEOUS
- 15 APLITE DYKES
- 14 GRANODIORITE AND GRANITE
- PRECAMBRIAN AND/OR PALEOZOIC
- YUKON GROUP
- MINERALIZED UNITS
  - 11 GARNET SKARN GROSSULAR-DIOPSIDE MASSIVE ROCK
  - 10 MASSIVE DIOPSIDE SKARN
  - 9 VITREOUS SKARN QUARTZ-PLAGIOCLASE-GROSSULAR-SCHEELITE LAMINATED ROCK
  - 8 LAMINATED DIOPSIDE SKARN LIGHT GREEN TO PALE WHITE
- 7 BIOTITE-QUARTZITE FELDSPAR SCHIST
- 4 GREEN QUARTZITE CALCITE-QUARTZ-TREMOLITE MASSIVE ROCK
- 1 WHITE TO PALE GREY MARBLE
- FAULTS (DEFINITE, ASSUMED)
- GEOLOGICAL CONTACTS (DEFINITE, ASSUMED)
- DIAMOND DRILL HOLE No - 1979
- PROPOSED DIAMOND DRILL HOLE No.-1980
- $WO_3$% CORE ASSAYS
- ORE MINERALIZATION

CANADA TUNGSTEN MINING CORP. LTD.

# DUBLIN GULCH PROJECT

YUKON TERRITORY-1979

## SECTION G-G'

DRILL HOLES 79-16, 79-21

METRES 0 5 10 15 20 — FEET 0 15 30 60 90

| | |
|---|---|
| SCALE IN : 1:400 | NTS No. 106 D-4 |
| DATE MARCH, 1980 | MAP No 28 |
| DRAWN BY: Altair | To accompany report |
| GEOLOGY BY: W.A. GEWARGIS | 1979 DUBLIN GULCH PROJECT REPORT |

ELEVATION WEST

EAST ELEVATION

# VIEW LOOKING NORTH

REFERENCE LINE 463,000 E.

1450 M

1400 M

1350 M

1300 M

1250 M

1200 M

1150 M

1100 M

1050 M

H

H'

80-29 80-28 79-2 79-17 80-27 80-26

← Approx 93.0m from REFERENCE LINE 463,000 E. to the West is the contact with intrusive

175.0m

225.0m

340.0m

## probable ore reserves – upper zone

True thickness of mineralized zone = 3.8m. ( 12.5ft.)

Width (downdip lenght) = 58.5m. (192.0 ft.)

Lenght distance along the strike = 108.0m. (354.0 ft.)
(half distance between sections GG'-HH' & HH'-II')

Volume 12.5 x 192.0 x 354.0 = 849,600 Ft.³

Tonnage $\frac{849,600}{10}$ = 84,960.0 Tons

Grade 0.56 % $Wo_3$

## probable ore reserves – lower zone

True thickness of mineralized zone = 2.0m. ( 6.6ft.)

Width (downdip lenght) = 98.0m. (321.5 ft.)

Lenght distance along the strike = 108.0m. (354.0 ft.)
(half distance between sections GG'-HH' & HH'-II')

Volume 6.6 x 321.5 x 354.0 = 751,152.6 Ft.³

Tonnage $\frac{751,152.6}{10}$ = 75,115.26 Tons

Grade 0.34 % $Wo_3$

## possible ore reserves – lower zone

True thickness of mineralized zone = 2.0m. ( 6.6ft.)

Width (downdip lenght) = 98.0m. (321.5 ft.)

Lenght distance along the strike = 108.0m. (354.0 ft.)
(half distance between sections GG'-HH' & HH'-II')

Volume 6.6 x 321.5 x 354.0 = 751,152.6 Ft.³

Tonnage $\frac{751,152.6}{10}$ = 75,115.26 Tons

Grade 0.33 % $Wo_3$

Note: Assuming a tonnage factor of 10 cubic ft. of rock / ton of ore.

## LEGEND

OVERBURDEN

CRETACEOUS

15 APLITE DYKES

14 GRANODIORITE AND GRANITE

PRECAMBRIAN AND/OR PALEOZOIC
YUKON GROUP

MINERALIZED UNITS

11 GARNET SKARN : GROSSULAR - DIOPSIDE MASSIVE ROCK

10 MASSIVE DIOPSIDE SKARN

9 VITREOUS SKARN : QUARTZ - PLAGIOCLASE - GROSSULAR - SCHEELITE LAMINATED ROCK

8 LAMINATED DIOPSIDE SKARN : LIGHT GREEN TO PALE WHITE

7 BIOTITE - QUARTZITE FELDSPAR SCHIST

4 & 6 GREEN QUARTZITE : CALCITE - QUARTZ - TREMOLITE MASSIVE ROCK

1 WHITE TO PALE GREY MARBLE

FAULTS (DEFINITE, ASSUMED)

GEOLOGICAL CONTACTS (DEFINITE, ASSUMED)

DIAMOND DRILL HOLE No - 1979

PROPOSED DIAMOND DRILL HOLE No.-1980

0.5 $WO_3$% CORE ASSAYS

ORE MINERALIZATION

QUARTZ VEIN WITH ARSENOPYRITE

CANADA TUNGSTEN MINING CORP. LTD.

# DUBLIN GULCH PROJECT
YUKON TERRITORY-1979

# SECTION H-H'
## DRILL HOLES 79-1, 79-2

METRES 0 5 10 15 20 FEET 0 15 30 60 90

| | |
|---|---|
| SCALE IN 1:400 | NTS No. 106 D-4 |
| DATE MARCH, 1980 | MAP No. 29 |
| DRAWN BY Altair | To accompany report |
| GEOLOGY BY W. A. GEWARGIS | 1979 DUBLIN GULCH PROJECT REPORT |

ELEVATION WEST

# VIEW LOOKING NORTH

EAST ELEVATION

REFERENCE LINE 463,000 E

1450 M

1400 M

1350 M

1300 M

1250 M

1200 M

1150 M

1100 M

1050 M

1'

1

80-33

79-18

80-32

80-31

Approx 162.0 m from the REFERENCE LINE 463,000 E to the West is the contact with intrusive

230.0 m

160.0 m

## LEGEND

- OVERBURDEN
- CRETACEOUS
- 15 APLITE DYKES
- 14 GRANODIORITE AND GRANITE
- PRECAMBRIAN AND/OR PALEOZOIC
- YUKON GROUP
- MINERALIZED UNITS
  - 11 GARNET SKARN, GROSSULAR-DIOPSIDE MASSIVE ROCK
  - 10 MASSIVE DIOPSIDE SKARN
  - 9 VITREOUS SKARN, QUARTZ-PLAGIOCLASE-GROSSULAR-SCHEELITE LAMINATED ROCK
  - 8 LAMINATED DIOPSIDE SKARN, LIGHT GREEN TO PALE WHITE
  - 7 BIOTITE-QUARTZITE FELDSPAR SCHIST
  - 6 GREEN QUARTZITE, CALCITE-QUARTZ-TREMOLITE MASSIVE ROCK
  - WHITE TO PALE GREY MARBLE
- FAULTS (DEFINITE, ASSUMED)
- GEOLOGICAL CONTACTS (DEFINITE, ASSUMED)
- DIAMOND DRILL HOLE No - 1979
- PROPOSED DIAMOND DRILL HOLE No - 1980
- 0.5 WO3% CORE ASSAYS
- ORE MINERALIZATION

CANADA TUNGSTEN MINING CORP LTD

DUBLIN GULCH PROJECT

YUKON TERRITORY - 1979

## SECTION 1-1'

DRILL HOLE 79-18

METRES 0 5 0 15 20 FEET 0 15 30 60 90

| | |
|---|---|
| SCALE IN 1:400 | NTS No 106 D-4 |
| DATE MARCH, 1980 | MAP No 30 |
| DRAWN BY Attdr. | To accompany report |
| GEOLOGY BY: W.A. GEWARGIS | 1979 DUBLIN GULCH PROJECT REPORT |

ELEVATION WEST

# VIEW LOOKING NORTH

EAST ELEVATION

REFERENCE LINE 463,000 E.

1450 M

1400 M

1350 M

1300 M

1250 M

1200 M

1150 M

1100 M

1050 M

J'

J

79-19

Approx. 155.0m. from REFERENCE LINE 463,000 E. to the West is the contact with intrusive

## LEGEND

- OVERBURDEN

CRETACEOUS

- APLITE DYKES
- GRANODIORITE AND GRANITE

PRECAMBRIAN AND/OR PALEOZOIC
YUKON GROUP

MINERALIZED UNITS

- GARNET SKARN: GROSSULAR-DIOPSIDE MASSIVE ROCK
- MASSIVE DIOPSIDE SKARN
- VITREOUS SKARN: QUARTZ-PLAGIOCLASE-GROSSULAR-SCHEELITE LAMINATED ROCK
- LAMINATED DIOPSIDE SKARN: LIGHT GREEN TO PALE WHITE
- BIOTITE-QUARTZITE FELDSPAR SCHIST
- GREEN QUARTZITE: CALCITE-QUARTZ-TREMOLITE MASSIVE ROCK
- WHITE TO PALE GREY MARBLE

FAULTS (DEFINITE, ASSUMED)

GEOLOGICAL CONTACTS (DEFINITE, ASSUMED)

DIAMOND DRILL HOLE No. - 1979

PROPOSED DIAMOND DRILL HOLE No. 1980

0.5 WO3% CORE ASSAYS

ORE MINERALIZATION

CANADA TUNGSTEN MINING CORP LTD

DUBLIN GULCH PROJECT
YUKON TERRITORY-1979

## SECTION J-J'
DRILL HOLE 79-19

METRES 0 5 10 15 20 FEET 0 15 30 60 90

| | |
|---|---|
| SCALE IN 1 400 | NTS No 106 D-4 |
| DATE MARCH, 1980 | MAP No 31 |
| DRAWN BY: [illegible] | To accompany report |
| GEOLOGY BY: W. A. GEWARGIS | 1979 DUBLIN GULCH PROJECT REPORT |

ELEVATION WEST

EAST ELEVATION

REFERENCE LINE 463,000 E

# VIEW LOOKING NORTH

1450 M

1400 M

1350 M

1300 M

1250 M

1200 M

1150 M

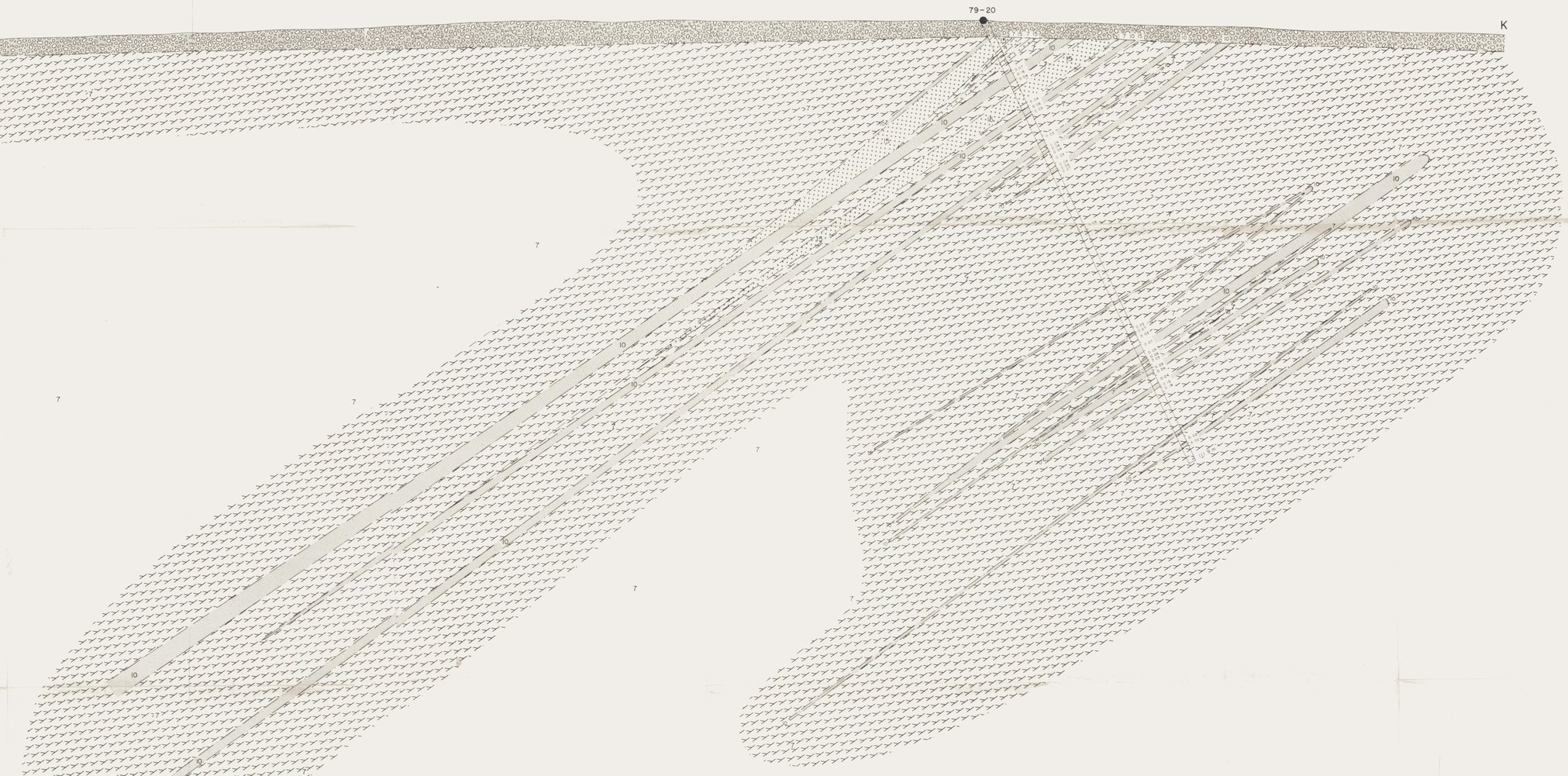
1100 M

1050 M

K

79-20

K



## LEGEND

OVERBURDEN

CRETACEOUS

APLITE DYKES

GRANODIORITE AND GRANITE

PRECAMBRIAN AND/OR PALEOZOIC
YUKON GROUP

MINERALIZED UNITS

- GARNET SKARN: GROSSULAR-DIOPSIDE MASSIVE ROCK
- MASSIVE DIOPSIDE SKARN
- VITREOUS SKARN: QUARTZ-PLAGIOCLASE-GROSSULAR-SCHEELITE LAMINATED ROCK
- LAMINATED DIOPSIDE SKARN: LIGHT GREEN TO PALE WHITE
- BIOTITE QUARTZITE FELDSPAR SCHIST
- GREEN QUARTZITE: CALCITE-QUARTZ-TREMOLITE MASSIVE ROCK
- WHITE TO PALE GREY MARBLE

FAULTS (DEFINITE, ASSUMED)

GEOLOGICAL CONTACTS (DEFINITE, ASSUMED)

DIAMOND DRILL HOLE No - 1979

PROPOSED DIAMOND DRILL HOLE No - 1980

0.5 $WO_3$% CORE ASSAYS

ORE MINERALIZATION

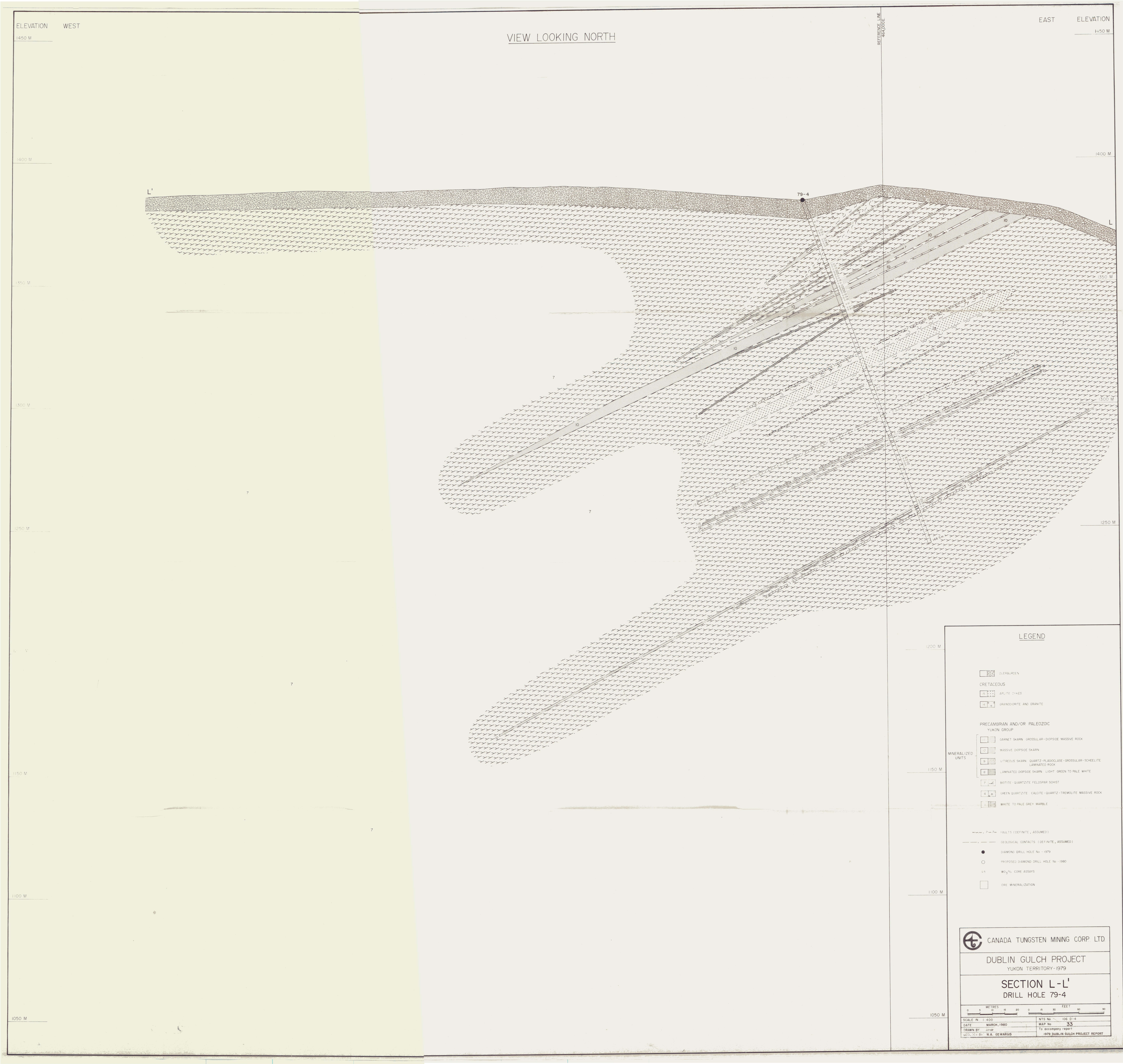
CANADA TUNGSTEN MINING CORP. LTD.

DUBLIN GULCH PROJECT
YUKON TERRITORY - 1979

# SECTION K-K'
## DRILL HOLE 79-20

METRES 0 5 10 15 20 — FEET 0 15 30 60 90

| | |
|---|---|
| SCALE IN 1:400 | NTS No 106 D-4 |
| DATE MARCH, 1980 | MAP No 32 |
| DRAWN BY: Aitor | To accompany report |
| GEOLOGY BY: W.A. GEWARGIS | 1979 DUBLIN GULCH PROJECT REPORT |



ELEVATION WEST
EAST ELEVATION
VIEW LOOKING NORTH
REFERENCE LINE 464,000E
1450 M
1400 M
1350 M
1300 M
1250 M
1200 M
1150 M
1100 M
1050 M
L'
L
79-4
LEGEND
OVERBURDEN
CRETACEOUS
APLITE DYKES
GRANODIORITE AND GRANITE
PRECAMBRIAN AND/OR PALEOZOIC
YUKON GROUP
MINERALIZED UNITS
GARNET SKARN GROSSULAR-DIOPSIDE MASSIVE ROCK
MASSIVE DIOPSIDE SKARN
VITREOUS SKARN QUARTZ-PLAGIOCLASE-GROSSULAR-SCHEELITE LAMINATED ROCK
LAMINATED DIOPSIDE SKARN LIGHT GREEN TO PALE WHITE
BIOTITE-QUARTZITE FELDSPAR SCHIST
GREEN QUARTZITE CALCITE-QUARTZ-TREMOLITE MASSIVE ROCK
WHITE TO PALE GREY MARBLE
FAULTS (DEFINITE, ASSUMED)
GEOLOGICAL CONTACTS (DEFINITE, ASSUMED)
DIAMOND DRILL HOLE No - 1979
PROPOSED DIAMOND DRILL HOLE No - 1980
WO3% CORE ASSAYS
ORE MINERALIZATION
CANADA TUNGSTEN MINING CORP. LTD.
DUBLIN GULCH PROJECT
YUKON TERRITORY-1979
SECTION L-L'
DRILL HOLE 79-4
METRES
FEET
SCALE IN 1:400
DATE MARCH, 1980
DRAWN BY Altair
GEOLOGY BY W.A. GEWARGIS
NTS No. 106 D-4
MAP No. 33
To accompany report
1979 DUBLIN GULCH PROJECT REPORT

ELEVATION WEST

EAST ELEVATION

# VIEW LOOKING NORTH

1450 M
1400 M
1350 M
1300 M
1250 M
1200 M
1150 M
1100 M
1050 M

M'

M

79-3

14

108.8 m

## LEGEND

- OVERBURDEN
- CRETACEOUS
  - APLITE DYKES
  - GRANODIORITE AND GRANITE
- PRECAMBRIAN AND/OR PALEOZOIC
  - YUKON GROUP
    - MINERALIZED UNITS
      - GARNET SKARN, GROSSULAR-DIOPSIDE MASSIVE ROCK
      - MASSIVE DIOPSIDE SKARN
      - VITREOUS SKARN, QUARTZ-PLAGIOCLASE-GROSSULAR-SCHEELITE LAMINATED ROCK
      - LAMINATED DIOPSIDE SKARN, LIGHT GREEN TO PALE WHITE
    - BIOTITE-QUARTZITE FELDSPAR SCHIST
    - GREEN QUARTZITE, CALCITE-QUARTZ-TREMOLITE MASSIVE ROCK
    - WHITE TO PALE GREY MARBLE

- FAULTS (DEFINITE, ASSUMED)
- GEOLOGICAL CONTACTS (DEFINITE, ASSUMED)
- DIAMOND DRILL HOLE No - 1979
- PROPOSED DIAMOND DRILL HOLE No - 1980
- 0.5 $WO_3$% CORE ASSAYS
- ORE MINERALIZATION

CANADA TUNGSTEN MINING CORP LTD

DUBLIN GULCH PROJECT
YUKON TERRITORY-1979

# SECTION M-M'
## DRILL HOLE 79-3

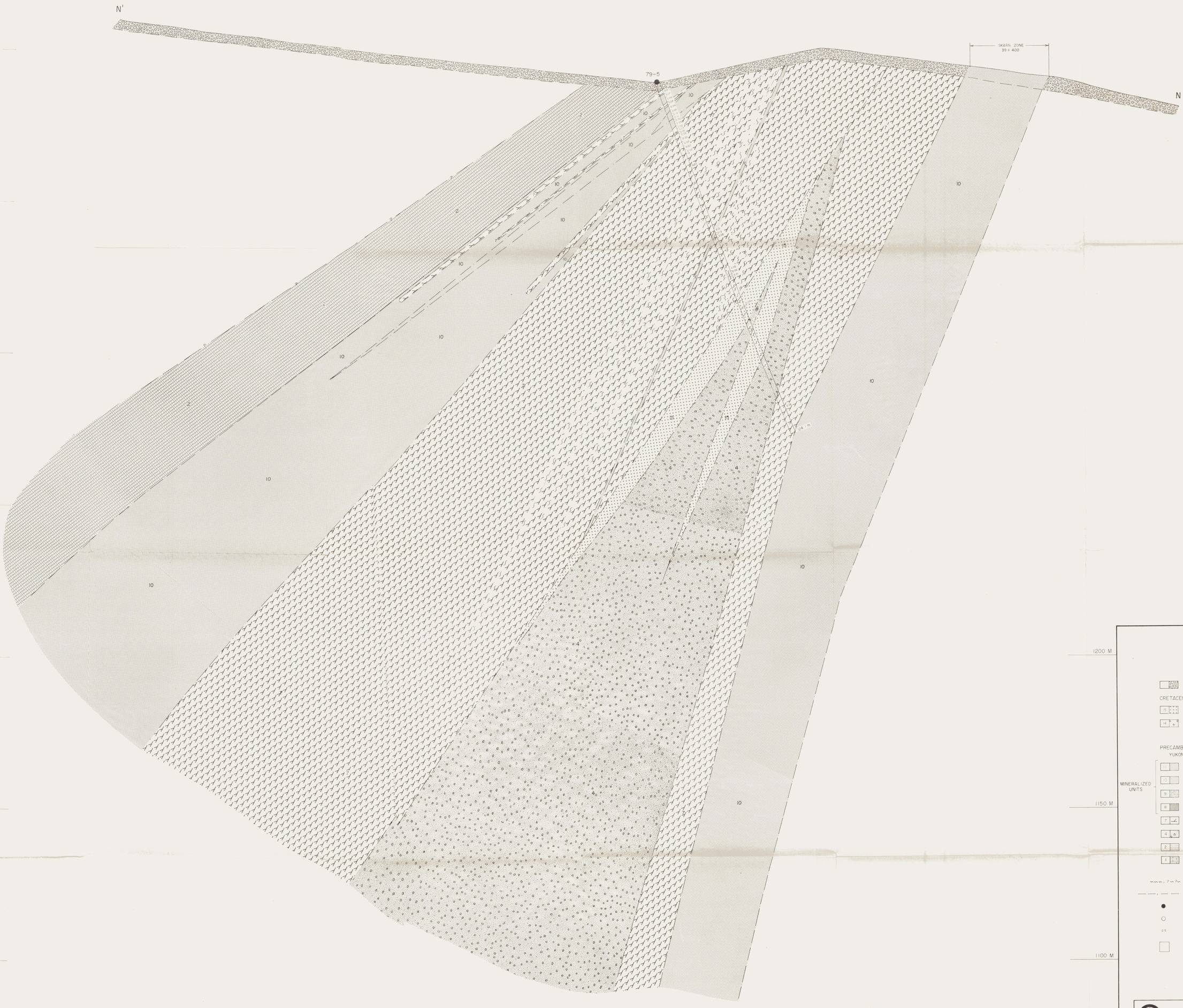
METRES 0 5 10 15 20 — FEET 0 15 30 60 90

| | |
|---|---|
| SCALE IN : 1:400 | NTS No 106 D-4 |
| DATE MARCH, 1980 | MAP No 34 |
| DRAWN BY: Altair | To accompany report |
| GEOLOGY BY: W.A. GEWARGIS | 1979 DUBLIN GUCH PROJECT REPORT |

ELEVATION WEST

EAST ELEVATION

# VIEW LOOKING NORTH




## LEGEND

OVERBURDEN

CRETACEOUS

5 APLITE DYKES

4 GRANODIORITE AND GRANITE

PRECAMBRIAN AND/OR PALEOZOIC
YUKON GROUP

MINERALIZED UNITS

- 11 GARNET SKARN GROSSULAR-DIOPSIDE MASSIVE ROCK
- 10 MASSIVE DIOPSIDE SKARN
- 9 VITREOUS SKARN QUARTZ-PLAGIOCLASE-GROSSULAR-SCHEELITE LAMINATED ROCK
- 8 LAMINATED DIOPSIDE SKARN LIGHT GREEN TO PALE WHITE
- 7 BIOTITE-QUARTZITE FELDSPAR SCHIST
- 4 GREEN QUARTZITE CALCITE-QUARTZ-TREMOLITE MASSIVE ROCK
- 2 BUFF QUARTZITE
- 1 WHITE TO PALE GREY MARBLE

FAULTS (DEFINITE, ASSUMED)

GEOLOGICAL CONTACTS (DEFINITE, ASSUMED)

DIAMOND DRILL HOLE No - 1979

PROPOSED DIAMOND DRILL HOLE No - 1980

0.5 $WO_3$% CORE ASSAYS

ORE MINERALIZATION

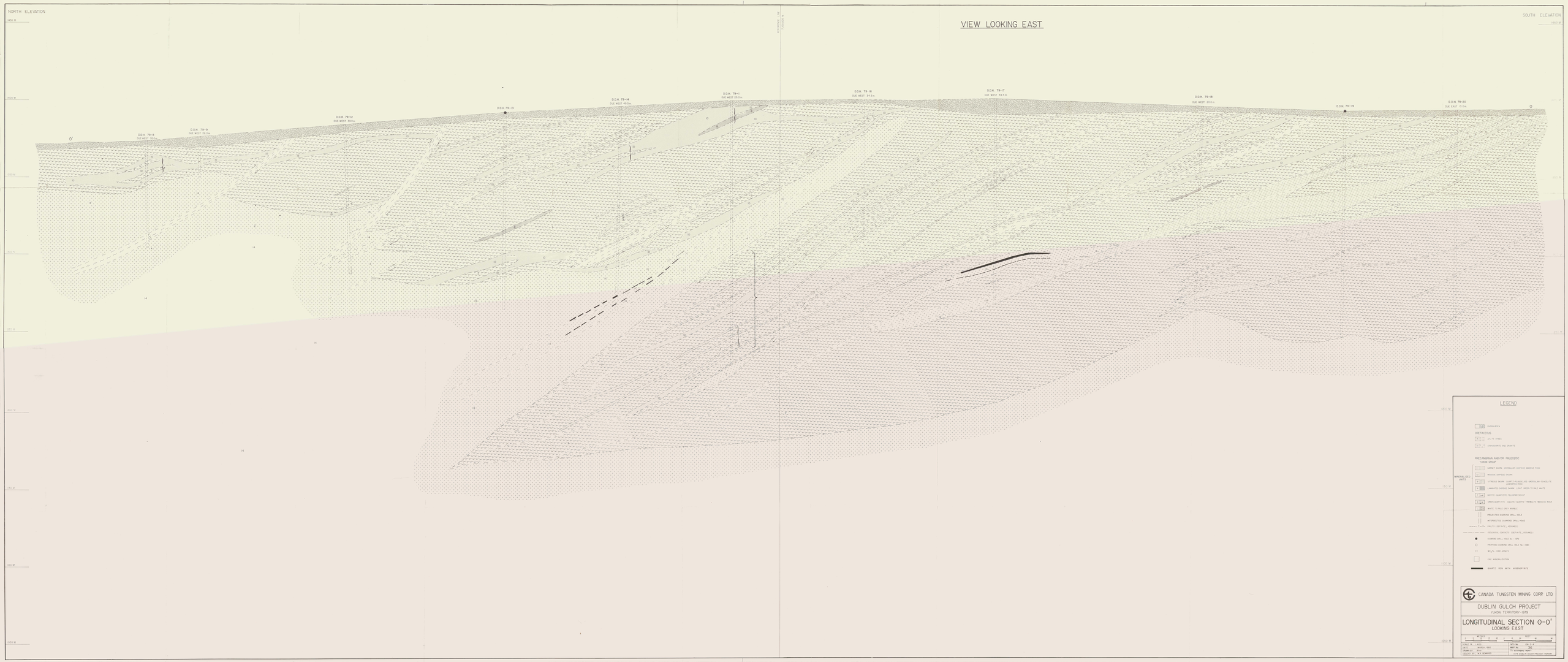
CANADA TUNGSTEN MINING CORP. LTD.

DUBLIN GULCH PROJECT
YUKON TERRITORY - 1979

# SECTION N-N'
## DRILL HOLE 79-5

METRES 0 5 10 15 20 — FEET 0 15 30 60 90

| | |
|---|---|
| SCALE IN : 1:400 | NTS No 106 D-4 |
| DATE : MARCH, 1980 | MAP No 35 |
| DRAWN BY : Altair | To accompany report |
| GEOLOGY BY : W.A. GEWARGIS | 1979 DUBLIN GULCH PROJECT REPORT |


NORTH ELEVATION
SOUTH ELEVATION
VIEW LOOKING EAST
D.D.H. 79-8
D.D.H. 79-9
D.D.H. 79-12
D.D.H. 79-13
D.D.H. 79-14
D.D.H. 79-1
D.D.H. 79-16
D.D.H. 79-17
D.D.H. 79-18
D.D.H. 79-19
D.D.H. 79-20
LEGEND
CRETACEOUS
PRECAMBRIAN AND/OR PALEOZOIC
YUKON GROUP
MINERALIZED UNITS
CANADA TUNGSTEN MINING CORP LTD
DUBLIN GULCH PROJECT
YUKON TERRITORY-1979
LONGITUDINAL SECTION 0-0'
LOOKING EAST
METRES
FEET
SCALE 1:1000
DATE
DRAWN BY
CHECKED BY
DATE
MAP No.
TO ACCOMPANY PART
NOTE: DUBLIN GULCH PROJECT REPORT

# VIEW LOOKING EAST

NORTH ELEVATION

SOUTH ELEVATION

D.D.H. 79-8 DUE EAST 52.0 m

D.D.H. 79-9 DUE EAST 55.0 m

D.D.H. 79-11 DUE WEST 51.0 m

D.D.H. 79-10 DUE WEST 72.0 m

D.D.H. 79-14 DUE EAST 35.0 m

D.D.H. 79-7 DUE WEST 39.0 m

D.D.H. 79-16 DUE EAST 50.0 m

D.D.H. 79-2 DUE EAST 49.0 m

D.D.H. 79-18 DUE EAST 64.5 m

D.D.H. 79-19 DUE EAST 84.0 m

D.D.H. 79-20 DUE EAST 97.0 m

## LEGEND

- OVERBURDEN
- CRETACEOUS
  - ARGILLITE, ATASO
  - UNDIVIDED SEDIMENTS
- PRECAMBRIAN AND/OR PALEOZOIC
  - UNION GROUP
    - GARNET SKARN, CALCSILICATE-DIOPSIDE MASSIVE ROCK
    - MASSIVE DIOPSIDE SKARN
    - HYBRIDA SKARN, QUARTZ-PLAGIOCLASE-CALCSILICATE-TEXTURE LAMINATED ROCK
    - LAMINATED DIOPSIDE SKARN, LIGHT GREEN TO PALE WHITE
    - BIOTITE-QUARTZITE FELDSPAR SCHIST
    - GREEN QUARTZITE, CALCITE-QUARTZ-TREMOLITE MASSIVE ROCK
  - MARBLE
  - GREEN QUARTZITE, CALCITE-QUARTZ-TREMOLITE LAMINATED ROCK
  - GREEN QUARTZITE, CALCITE-QUARTZ-TREMOLITE MASSIVE ROCK