DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT
MINERAL RESOURCES
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Mayo Mining District
MINING RECORDER

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Yukon Territory

1981 EXPLORATION PROGRAM

DUBLIN GULCH

090915

BEMA
Industries Ltd.



This report has been examined by the Geological Evaluation Unit under Section 53 (4) of the Yukon Quartz Mining Act and is accepted as representation work in the amount of $ 295,000

for Regional Manager, Exploration and Geological Services for Commissioner of Yukon Territory.

1981 EXPLORATION PROGRAM

DUBLIN GULCH

Mayo Mining Division

N.T.S.: 106 D/4

64°02' Latitude, 135°50' Longitude

Located in the Central Yukon approximately 40 air kilometres northeast of Mayo, Y.T.

Owned by:

CANADA TUNGSTEN MINING CORPORATION LIMITED
Executive Office
Box 12525, Oceanic Plaza
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Geologist

November, 1981

090915

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Dublin Gulch

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SUMMARY

This report describes the work done during the 1981 field season on the one thousand seventy (1,070) mineral claims owned by Canada Tungsten Mining Corporation Limited. These claims are located in the Dublin Gulch area of the Yukon Territory.

The work done consists of regional geological mapping, trenching and conventional soil sampling of specific areas, and heavy mineral geochemical analysis of all major drainages in the area.

The 1981 Dublin Gulch exploration program began with a program of regional geological mapping and geochemical prospecting. Later in the season work focused in on areas of interest with the intention of evaluating mineral occurrences and of locating future drill targets.

Regional geological mapping confirmed that the Dublin Gulch ore zone lies within Grit Unit sediments, just west of their contact with the Upper Schist formation.

This mapping program allowed five (5) years' assessment credit to be applied to five hundred ninety (590) of the one thousand seventy (1,070) claims. This regional overview led to a more confident understanding of the detailed geology in areas of interest. Four (4) phases of structural deformation have been recognized, the second of which is believed to be responsible for the intrusive emplacement and structural control in the vicinity of the Dublin Gulch ore zone. Stratigraphic correlations were made in Ray Gulch which indicate that structural deformation here is not as complex as earlier presumed. Thus mineralized skarn zones are thought to be more continuous then previously reported in the 1980 report. A re-calculation of ore reserves has been completed by Mr. B. Lennon and a revised geological interpretation of the drill geology has been initiated. Two (2) sections are included in this report (see Figures 13a and 13b).

Heavy mineral geochemical sampling outlined several areas anomalous in tungsten tin and gold. All the Dublin Gulch pups and Ray Gulch showed high tungsten and gold values. Creeks draining the HIT intrusion (AMAX) showed high tungsten and occasionally high gold values. This area was also the subject of a detailed prospecting and geochemical sampling survey. High gold and tungsten values came from a south tributary of Skate Creek. Gill and Fisher Gulch were anomalous in tin (see Figures 15, 16, 17).

Rock geochemistry has delineated areas anomalous in tin south of Ironrust Creek, on Tin Dome and near the mouth of Gill Gulch.

No further work should be done on:

a) WEASEL claims east of Ski Creek,

b) on C.J. Claims north of the HIT intrusion (except in the vicinity of the old Mayo Silver Mines-silver vein),

c) on the JEFF and BOB claims north of Haggart Creek.

The geochemical sampling done over these areas gave no anomalies and outcrop is scarce. No known mineralization is known to exist on or near these claims.

All recommendations listed by Bartlett, S. C. (1980) for the gold-quartz vein-fissure system at Dublin Gulch should be carefully reconsidered. A program designed to test the potential of the gold bearing quartz arsenopyrite veins adjacent to the Dublin Gulch stock is as follows:

a) caterpillar trenching,

b) detailed mapping of the exposed veins and alteration assemblages,

c) a test survey of Induced Polorization or Resistivity,

d) several diamond drill holes.

A road should be built from the Dublin Gulch drill zone down the ridge between Pudsey Pup and Ray Gulch to about the one thousand (1,000) metre elevation.

From this road diamond drill sites should be set up on the ridge just west of the Lower Ray Gulch skarn outcrop and around the periphery of the Lower Ray Gulch intrusive.

Diamond drilling is recommended southeast and north of the holes already drilled in 1979 - 1980. The holes should be drilled to expand ore reserves in zones already outlined and test for additional mineralized skarn zones beneath the stepped granitic sills.

In at least one (1) location diamond drill holes should be drilled between the 1980 drill holes. This would test the validity of interpretations made between the 1980 fifty (50) metre drill hole spacings.

At least one (1) deep diamond drill hole is recommended for the Dublin Gulch drill zone. This would test the theory that these sheets probably continue with depth and that potential for more tungsten bearing units between these is great.

Several diamond drill holes should be drilled on the ridge in the vicinity of the Lower Ray Gulch intrusion and also around the southeast periphery of this intrusion.

At least one (1) diamond drill hole should be drilled within the Dublin Gulch to test the potential of the quartz veins hosting scheelite mineralization. At 38 + 300E, 10 + 800N there is an area which is anomalous in tungsten that could be readily tested by a drill hole drilled to the northwest.

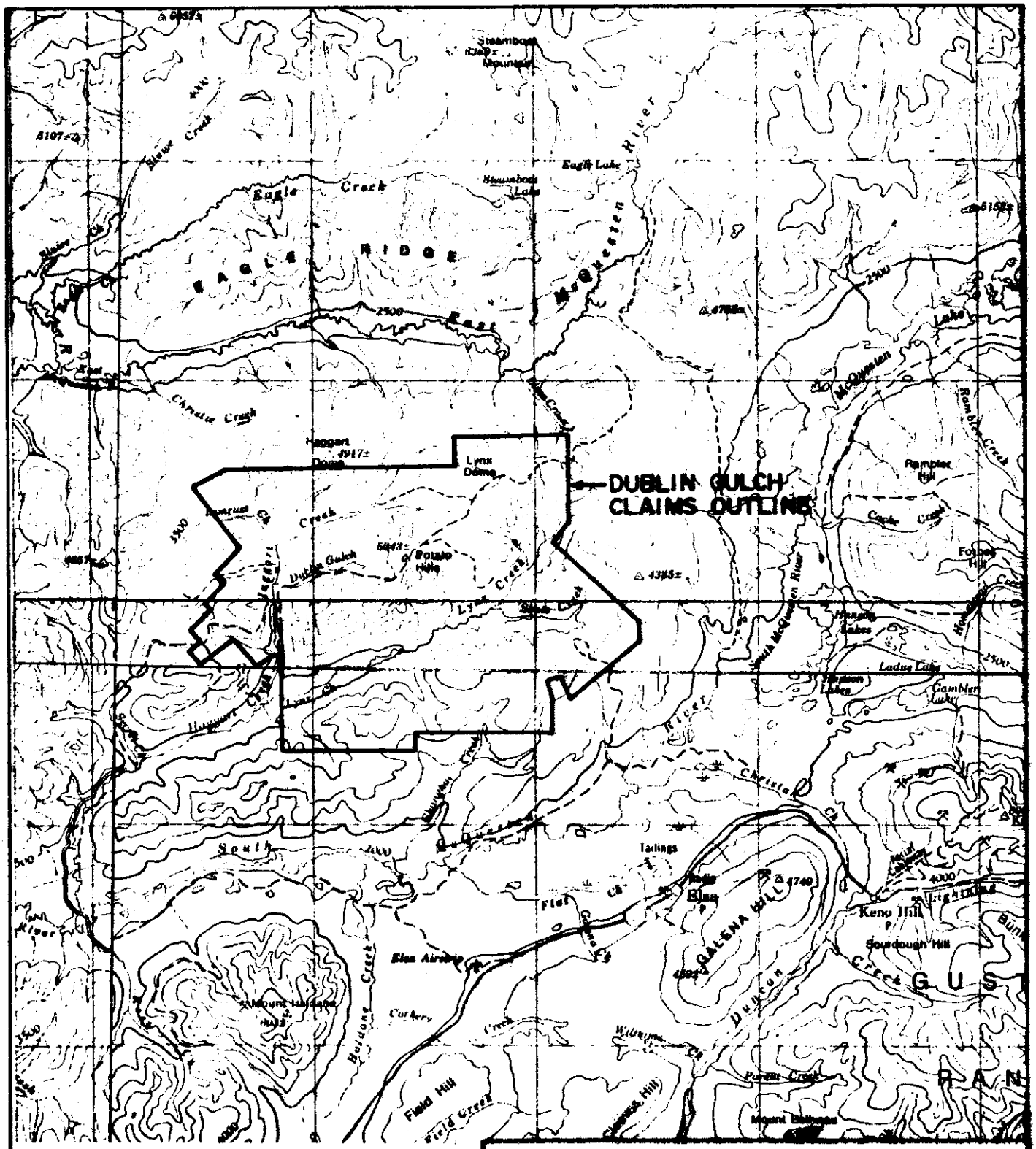
Further trenching should be carried out over the main Dublin Gulch "drill zone" in order to check diamond drill holes projections, test the grade of the ore, and prospect for unknown tungsten bearing units.

Caterpillar trenching and detailed mapping should be done on the ridge and slopes east of Ray Gulch in order to evaluate the small skarn outcrops and the many occurrences of scheelite bearing float found there. Trenching should also be tried around the southeast periphery of the Lower Ray Gulch intrusion (although overburden thickness here is thought to be great).

A bulk sample of the dark green scheelite bearing skarn units should be taken. The sample should be larger than the ones taken in 1980 (in the order of fifty (50) tons). This could be studied at the Colorado School of Mines in Boulder, Colorada, for grade and efficiency of milling.

Evaluate the current geological field and whole rock information at Dublin Gulch to determine if the small stocks to the west of the granodiorite stock are possible tin carriers and the possible styles of tin mineralization that may occur in the area (Smith, 1981). Whole rock samples are currently being analysed.

Creeks high in tin should be further prospected to find pebble tin. Soils upslope of this pebble tin should be panned and the results of this used to locate trenching targets. Contour soil sample lines at several elevations are recommended to zero in on anomalous areas. Trenching might then uncover cassiterite-bearing veins similar to that on Tin Dome. No further work is recommended for Tin Dome due to the discouraging results reported by Cominco Ltd. in their underground adit exploration of the outcropping tourmaline-cassiterite breccia zone.



CANADA TUNGSTEN MINING CORPORATION

DUBLIN GULCH

1981 GEOLOGICAL EXPLORATION PROGRAMME

LOCATION PLAN

DATE NOVEMBER, 1981	JOB NO. 81-06G
REVISED BY:	FIG. NO. 1

BEMA INDUSTRIES LTD.

1.0 INTRODUCTION

The following reports on work done during the field season 1981 for the Canada Tungsten Mining Corporation Limited on one thousand seventy (1,070) mineral claims held in the Dublin Gulch area of the Yukon Territory.

The work done consists of regional geological mapping, detailed geological mapping, trenching and conventional soil sampling of specific areas, and heavy mineral geochemical analysis of all major drainages in the area.

1.1 LOCATION AND ACCESS

Dublin Gulch is located in central Yukon approximately forty (40) kilometres in a direct line northeast from Mayo. The gulch is centered at approximately 64°02'N latitude and 135°50'W longitude. The property is roughly ninety (90) kilometres by road from Mayo; fifty (50) kilometres by all-weather road to the South McQuesten River Bridge and forty (40) kilometres by a rough gravel road along Haggart Creek to the camp.

Access to the tungsten skarn and quartz vein system is by a rough gravel road which follows Dublin Creek to Olive Gulch then, by means of switch backs climbs to the flat plateau southwest of the Potato Hills. Several old roads which branch from the main road lead to various showings of the quartz vein system. A well developed network of bulldozer roads on Tin Dome provide easy access to those workings.

1.2 PHYSIOGRAPHY

In the Dublin Gulch area flat plateaus and rolling hills are dissected by a network of deep creek gulches and lesser stream valleys or "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 eight hundred (800) metres (two thousand, six hundred twenty-five (2,625) feet) at the mouth of Dublin Gulch and one thousand six hundred fifty-four (1,654) metres (five thousand four hundred twenty-seven)(5,427) feet) at the Potato Hills.

Slopes in the area are moderately steep but are locally steeper in Ray Gulch and to the west within the main granitic pluton. Bedrock or boulder talus is found on the steeper slopes. Moderate slopes are covered



PHOTO NO. 3. Dublin Gulch Exploration Camp.



PHOTO NO. 4. Potato Hills and Road Leading to Lower Ray Gulch.

by felsenmeer or by residual soil and glacial till. Permafrost is found in poorly drained areas on north facing slopes.

Vegetation is typical of central Yukon and locally varies between lichen and moss, buckbrush and spruce. Moss and lichens occur on steep, north facing, felsenmeer covered slopes. Buckbrush is ubiquitous in the Dublin Gulch area while spruce, to thirty (30) centimetres (twelve (12) inches) in diameter, is normally restricted to valley bottoms and areas underlain by glacial till or residual soil.

1.3 PROPERTY

Appendix 'A' is a synopsis of the status of the one thousand seventy (1,070) claims held in the Dublin Gulch area. Claim names, Yukon government acquisition numbers and renewal dates are listed here for the eight hundred seventy-eight (878) full and one hundred ninety-two (192) fractional claims.

1.4 HISTORY

The Dublin Gulch area has had a long history of mining activity dating back to the Klondike gold rush days of the last century. 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 was not until 1904 that scheelite was identified in the placer deposits. In 1908 Cockfield located scheelite and wolframite in quartz veins and pegmatitic veins at the head of Dublin Gulch. These lode discoveries coupled with increasing amounts of gold and tungsten being recovered from placer operations resulted in a flurry of exploration activity for additional lode deposits from 1913 to 1916.

A major vein fissure system containing gold, arsenopyrite and silver was discovered on the north facing slopes of the ridge to the south of Dublin Creek. In 1907 J. S. Stewart and Dr. William Catto located the Victoria claim, the first quartz claim staked in Dublin Gulch. Eventually ten (10) veins were discovered between Stewart and Olive Gulches. Other veins belonging to this vein-fissure system were discovered in Eagle Pup, Suttle Pup, Platinum Pup, Bawn Boy Pup and near the junction of Cascallen Pup and Dublin Creek. One prospect, covered by the Independence claim, was located on the ridge above Gill Gulch, west of Haggart Creek. A number of the veins were reported to extend for more than sixty-one (61) metres (two hundred (200) feet) with widths up to three (3) metres (ten (10) feet), (McLean, 1914).

The early history of the area is detailed in the reports of the Federal Department of Mines; particularly in reports by T. A. McLean, 1914, and D. D. Cairnes, 1915. Dr. W. E. Cockfield of the Geological Survey of Canada reported many of the above occurrences in 1918.

From 1916 to 1918 Mr. Robert Fisher prospected around the headwaters of Dublin Gulch and located several small lode occurrences of scheelite. Little or no work was conducted on these showings. Cockfield (1928) reported that the scheelite in the placer deposits was emanating from quartz veins and pegmatitic veins found in and adjacent to the main Dublin Gulch Stock, located south of Dublin Gulch. The veins are varried in width from one-eighth (1/8) of an inch (three (3) millimetres) to over five (5) feet (one point five (1.5) metres). Assays range from nil to ten (10) percent WO_3.

During the period 1916 to 1918 some scheelite concentrate was saved and shipped from the placer operations. From 1934 into the 1940's, Taylor, Blyler and others worked the placer deposits at Dublin Gulch. In 1916 cassiterite was first recognized in placer concentrates. The placer cassiterite appeared to emanate from Ann Gulch and further prospecting led to the discovery of two (2) tin, tourmaline-quartz veins on Tin Dome in 1943. In 1945 Cominco drove a short adit of fifty-six (56) feet (seventeen (17) metres) bud did not intersect the vein. No assessment work has been recorded since 1945. In April of 1977 Gordon Dickson staked fifty-six (56) mineral claims over the Tin Dome showings. The claims were optioned to Canada Tungsten Mining Corporation Limited in 1978.

Some historical notes pertaining to other areas around Dublin Gulch, particularly Ray Gulch, follow.

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

Mayo Silver Mines Ltd. located on a two and one-half (2½) foot (seventy-six (76) centimetre) aresenopyrite-quartz vein on the east side of the headwaters of Ray Gulch. They did not explore for tungsten.

Mr. C. Provencher staked the Ray Gulch and Dublin Gulch area in 1968. The ground was optioned to Great Plains Development Ltd. in 1968, Tam Mining in 1969 and Connaught Mines Ltd. from 1969 to 1971. In 1970 Connaught subleased the property to Canex-Placer. In 1970 and 1971 Canex-Placer conducted an extensive soil geochemistry program that extended from Platinum Pup to the Potato Hills and covered the south side of Dublin Gulch.

Canex drilled two thousand (2,000) feet (six hundred ten (610) metres) and cut twenty (20) dulldozer trenches in the Dublin Gulch - Bawn Boy Pup area. The work was primarily confined to the granodiorite stock with the intent of developing a large, low-grade, scheelite-bearing quartz vein stockwork system. No work was done in the Ray Gulch area. Their diamond drill hole, 71 - 1, missed the main Dublin Gulch ore zone by four hundred (400) metres.

In March of 1977 Gordon Gutrath of Queenstake Resources Ltd. staked twenty-four (24) Mar Claims in the Ray Gulch drainage area. In October of 1977 Mr. Gutrath staked the Mar twenty-five to thirty (25 to 30) claims which lie adjacent and to the east of the Mar one to twenty-four (1 to 24) claims. Queenstake conducted a small program of geological mapping and sampling of the skarn zones in the Ray Gulch areas. Canada Tungsten Mining Corporation Limited optioned the Mar claims from Queenstake during the summer of 1978. Following ground acquisition by staking in 1978 by Canada Tungsten Mining Corporation Limited, a preliminary field program was conducted. Encouraging results in that year led to an extensive 1979 exploration program involving two thousand four hundred twenty-two (2,422) metres (seven thousand nine hundred forty-six (7,946) feet) of BQ core drilling in twenty-one (21) holes. In 1980 Bema Industries Ltd. was retained to manage the project and a large program including eleven thousand three hundred fifteen (11,315) metres (thirty-seven thousand one hundred twenty-three (37,123) feet) of NQ and BQ core drilling was conducted.

1.5 PRESENT WORK

Work conducted during the 1981 field season consisted of geological mapping, geochemical sampling, and trenching.

Geological mapping at 1:5,000, 1:25,000 and 1:50,000 scale was done over the entire claim area and the peripheral area. This was carried out in order to cover all claims requiring assessment work and also to gain a regional understanding of the geology within the Dublin Gulch area. Detailed mapping at 1:1,000 scale was done over areas of scheelite-skarn mineralization (in particular the Dublin Gulch drill zone, the Dublin Gulch grid and the Ray Gulch grid).

Geochemical sampling and grid work was conducted between the existing lines on the main Dublin Gulch grid as well as over Ray Gulch, Gill Gulch and a neighbouring intrusion to the east. Fifteen (15) pound samples were collected from all major drainages within and peripheral to the Dublin Gulch claim group and analysed for their heavy mineral content.

Trenching was carried out late in September over the eastern margin of the Dublin Gulch 1979-1980 drill zone. This was done to test for the presence and the grade of scheelite bearing skarn projected from the 1980 drilling information.

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2.0 GENERAL GEOLOGY

The Dublin Gulch area is situated in the center of the geological province known as the Selwyn Basin.

The stratigraphic section from highest to lowest structural level (west-east) is: Grit Unit (Upper Proterozoic age); Upper Schist (Upper Proterozoic to Lower Paleozoic age); Central Quartzite (Jurassic to Cretaceous in age) and Lower Schist (Jurassic in age). The Dublin Gulch skarn deposit is situated in calcareous beds near the bottom of the Grit Unit.

The Grit Unit is the oldest (Precambrian) and most widespread unit in the area. The Upper Schist formation is thought to be allochthonous, correlative with the Klondike Schist of the Dawson area which is part of the Yukon group of Precambrian and/or Paleozoic age (Green, 1972). The Grit Upper Schist sequence is older than the Central Quartzite but stratigraphically sits above it inferring a major thrust fault.

Intrusions in the area are generally Cretaceous in age (Wanless, et al., 1973). The Dublin Gulch tungsten skarn deposit is situated within the metamorphic aureole of a large granodiorite intrusion which was emplaced as thick north dipping sheets and dykes which probably root together at depth. A small quartz monzonite stock is in close proximity to the skarn deposit and is thought to have played an important role in the tungsten enrichment of the skarns. West of Haggart Creek another quartz monzonite intrustion is suspected to have been responsible for tin occurrences nearby. West of this intrusive are biotite-diorite ('lamprophyre') dykes of late Cretaceous or Tertiary age.

The map area is interpreted to be on the limb of a large scale recumbent nappe structure. Folding is thought to be associated with penetrative foliation and slip plane movement with axial surfaces striking northwest-southeast. A second phase of nappe folding with two to four (2 to 4) kilometres steeply dipping east-west axial surfaces refolds this F1 foliation. Axial surfaces dip gently north and steeply south indicating an antiformal culmination to the south. Broad open folding as seen in the Central Quartzite formation may be synchronous with this second phase of deformation.

One anticlinal crest passes through the Dublin Gulch area and is believed to be responsible for localization of intrusions in the area. These broad folds are dimensionally similar, have the same trend and are considered subsidiary to the McQuesten River anticline. Two other minor stages of deformation have been recognized in the map area. A major thrust fault has been interpreted to pass five (5) kilometres east of the Dublin Gulch tungsten skarn deposit and may have been associated with the McQuesten River anticline phase of folding under the Dublin area, and has thrust older Grit Unit rocks onto a younger slab of Central Quartzite rock.

Tungsten is located in quartz veins within the Dublin Gulch intrusion and also within skarn units close to the main Dublin Gulch granodiorite intrusion. A biotite hornfels and calc-silicate hornfels aureole has developed around the Dublin Gulch granodiorite intrusive. This event altered calcareous beds within the hornfels aureole to a light green wollastonite-quartz skarn. This granodiorite is cut by sporadic aplite dykes which, it is believed, originate from a small quartz monzonite stock in nearby Ray Gulch, which may be a deep separate intrusive. The aplite dykes appear to extend into quartz veins then into dry fractures. This quartz monzonite stock-aplite dyke-quartz vein-fracture concept is believed to be the transport mechanism for tungsten to have reached calcareous beds. The fluids carrying scheelite and iron replaced light green skarn and marble to create the dark green pyroxene rich tungsten bearing skarn. An alternate explanation is that the aplite dykes and coarse grained quartz scheelite veins heal structural zones which channelled early metasomatic fluids rich in iron and scheelite.

Tin mineralization found on Tin Dome, in Gill Gulch, in Fifteen Pup and South of Ironrust Creek, consists of green-brown to black mocrocrystalline cassiterite. On Tin Dome mineralization occurs in a northeast trending tourmalinized shear zone. West of Haggart Creek, in Gill Gulch and Fifteen Pup, anomalous tin-bearing stream sediments are more closely associated with granitic rocks. A small quartz monzonite body just west of Haggart Creek is thought to be responsible for tin occurrences in the area. Tin appears to be widespread in the Dublin Gulch area and the significance of its numerous occurrences has not been fully realized.

The Dublin Gulch granodiorite intrusive and the country rock to the southwest and northeast are cut by a vein fault and fissure system hosting quartz-arsenopyrite-scorodite material with significant gold values.

This system appears to be the youngest event of primary mineralization in the area. This is an epithermal mesothermal system with gold precipitating out first (south of Dublin Gulch) then silver, lead, antimony (northeast and southwest of Dublin Gulch) and successively lighter elements towards the structural top (see Figure 10). The gold may be related to an unexposed Tertiary granite or more probably to late hydrothermal fluids from the Dublin Stock. This would explain the high silver to the northeast and southwest and gold in the central portion of the system.

(For greater detail on this component of the Dublin Gulch mineralization, the reader is referred to Bartlett, S. C. (1980) and Appendix 'B'.)

A large outcrop of tungsten-bearing skarn was found in Lower Ray Gulch. Detailed mapping in Ray Gulch located several small tungsten-bearing skarn units as well as a small quartz-monzonite (aplite) plug. Two theories of mineralized skarn deposits are possible.

1. It has been hypothesized that this intrusive phase was responsible for carrying tungsten through aplite dykes, quartz veins and joints to be deposited by lateral secretion into the calcareous units found in proximity to the Dublin Gulch stock (see Figures 6 and 7). The main Dublin Gulch stock created a thermal hornfels aureole and within this aureole created the light green wollastonite-quartz skarn. The next skarn event was prompted by the intrusion of the quartz-monzonite which carried iron and tungsten to create the dark green scheelite bearing skarn.

2. The Dublin Gulch granodiorite stock was emplaced slowly into the Upper Schist - Lower Grit Unit. Initial thermal metamorphism occurred over a wide front altering rocks up to two (2) kilometres distance to a biotite hornfels-calc-silicate hornfels assembleage. The advancing intrusive was a sheet-like body with a step-like thick tapering sills on the eastern margin implying a passive injection with assimilation of the biotite quartzite schist-biotite hornfels being more preferable than to the calcium rich carbonate rocks. The slow cooling intrusive accumulated iron and tungsten rich fluids and these fluids were passively channelled along lines of weakness probably coincident with the projected Lynx Creek anticline. The fluids ascended until they encountered calcium rich rocks where both iron and tungsten were precipitated. Movement was primarily along zones of bedding plane weakness within the calc-silicate hornfels rocks or marble units. The main stage of iron tungsten metasomatism resulted in the formation of pyroxene with scheelite skarns. This event was followed by the intrusion of late leucocratic quartz porphyry dykes with associated coarse grained quartz-scheelite veins along the same vertical fracture zones. This may have been a later intrusion or maybe a more felsic derivative of the main stock. The sericitized mafics in lower Ray Gulch leucocratic quartz monzonite in the same proportion as the main stock indicates a late silicious phase of the main intrusive rich in volatiles. Scheelite skarn and quartz-scheelite stockwork mineralization is concentrated in a confined structural zone east of the main stock and roughly west of Lynx Creek. Fractures seem to form a conjugate north-south - east-west set which may be the prime control of mineralization.

Surface trenching proved that projections of block skarn units from the 1980 drill hole geology to surface are reasonably accurate. Rock assays ranged from point one (0.1) to point ninety-nine (0.99) percent WO_3 over the eastern margin of the drill zone near a granodiorite dyke/ apophysis.

3.0 PROPERTY GEOLOGY

The rock types that occur in the map are listed here in descending chronological age relations.

1A - Upper Schist formation (schist, phyllite, limestone and minor micaceous quartzite) (Upper Proterozoic - Lower Paleozoic).

1B - Grit Unit (micaceous quartzites, gritty quartzites, minor schist and phyllite) (Upper Proterozoic - Lower Paleozoic).

2 - Central Quartzite formation (massive and thick bedded quartzite with minor graphitic phyllite) (Upper Jurassic - Lower Cretaceous).

3 - Lower Schist formation (graphitic phyllite, quartz-chlorite-sericite schist and minor thin bedded quartzite) (Jurassic).

Four different phases of intrusive activity have been recognized on the property. They are (oldest to youngest):

Granodiorite	(Early Cretaceous)
Quartz-Monzonite (Aplite)	
Quartz-Feldspar Porphyry (age not certain)	
Biotite Diorite (Lamprophyre)	(Late Cretaceous)

3.1 STRATIGRAPHY

In a discussion of the stratigraphy of the area, it is convenient to discuss the units in order of their structural positions from lowest to highest.

DUBLIN GULCH 81-06G

TABLE of FORMATIONS TABLE II

ERA	PERIOD	MILLIONS of YEARS	BOYLE, R.W 1965	GREEN, L.H. 1971 TEMPELMAN-KLUIT 1970	BLUSSON, S.L. 1978	BEMA 1981
CENOZOIC	TERTIARY	65		Quartz-Feldspar Porphyry		Quartz-Arsenopyrite Veins
	CRETACEOUS	100 136	Quartz-Feldspar Porphyry Biotite Lamprophyre	Greenstone Keno Hill Quartzite fm		Biotite Lamprophyre Dykes Aplite (Qz. Monzonite) Granodiorite Qz-Felds-Porphyry
			Greenstone			Greenstone Keno Hill Quartzite fm
	JURASSIC	190		Lower Schist fm		Lower Schist fm
MESOZOIC	TRIASSIC	225				
	PERMIAN	280				
	CARBONIFEROUS	345			Central Quartzite	
	DEVONIAN	395			Lower Schist	
	SILURIAN	430				
	ORDOVICIAN	500				
PALEOZOIC	CAMBRIAN	570				
PRECAMBRIAN		1600	Upper Schist fm Central Quartzite fm Lower Schist fm	Upper Schist fm		Grit Unit Upper Schist fm

3.1.1 MAJOR ROCK UNITS

Lower Schist

The Lower Schist formation in the Dublin Gulch area is composed mainly of graphitic phyllite; quartz-chlorite-sericite schist, thin bedded quartzites and minor argillites. The Lower Schist formation is estimated to be up to twenty thousand (20,000) feet thick (Templeman-Klut, 1966). It is thought to be Jurassic in age on the basis of two (2) collections of echinoderm columnals (Green, 1972) and of fossils found in the Rackla River area (D.I.A.N.A., 1980).

Graphitic phyllite comprises the bulk of this unit. It is fissile, contains white siliceous interbeds and intercalated quartz lenses and knots, and is locally sericitic and limonitic. The quartz-chlorite-sericite schist is coarser grained and more competent than the graphite phyllite. It is locally very siliceous and sericitic and alters readily to a limonitic clay. Manganese oxide is common along fracture planes and foliation surfaces.

The Lower Schist is found on the eastern limits of the Dublin Gulch map area.

Central Quartzite Formation (Keno Hill Quartzite Formation)

The Central Quartzite formation conformably overlies the Lower Schist formation. This unit consists predominantly of bedded ortho-quartzite of varied thickness intercalated with graphitic phyllite, argillite and schist. Quartzite beds are predominantly massive, greater than three (3) metres thick and commonly contain thin interbeds of graphitic phyllite which generally do not exceed one (1) metre in thickness. The colour of the quartzite is varied from white to dark grey with medium grey being the most common; texturally it is varied from very fine grained to coarse grained grit. This is the formation that hosts the major silver ore lodes in the Keno Hill-Galena Hill area.

The Central Quartzite formation is thought to be Upper Jurassic to Lower Cretaceous in age because of fragmentary fossil remains and the stratigraphic position of this unit above rocks of probable Jurassic age (Green, 1972).

Upper Schist Formation

The Upper Schist formation consists of a thick assemblage of thin bedded to massive micaceous quartzite, quartz-chlorite-sericite schist and minor graphitic phyllite and limestone units. It is the same package of rocks which is seen to overlie the Central Quartzite formation of Keno Hill.

The contact between the Upper Schist formation and the Grit Unit is observed point five (0.5) kilometres east of Lynx Dome and also just east of Potato Hills. It is marked by a sudden change from predominantly major quartzite with minor limestone units to major graphitic phyllite, quartz-chlorite-sericite schist and limestone with minor thin bedded quartzites. There is also an absence of the quartz "eyes" or "grit", characteristic of the Grit Unit.

The Upper Schist formation overlies the Central Quartzite formation of Mesozoic age. It has been correlated with the Klondike Schist of the Dawson area and is thought to be of Precambrian and/or Paleozoic age (Templeman-Klut, 1970). Since most authors who have worked in the area consider that the Central Quartzite formation is of Mesozoic age, a thrust fault of major proportions is implied. (This south dipping thrust has been named the Robert Service Thrust Fault by D.T. Kluit (D.I.A.N.A., 1981) and is of probable Upper Cretaceous to Lower Tertiary age.) No field evidence has been found to prove the existence of such major movement in the map area. It may be possible that this overthrusting was accomplished by the cumulative effect of numerous internal recumbent minor thrusts; or it may be possible that (according to Poole, 1965) part of the overlying rocks postdate the Central Quartzite and that there is no major thrust fault in the map area.

A fossilized stromatoporid (Paleozoic) and a questionable halysitid (Ordovician and Silurian) were found near the headwaters of Lime Creek in limestone float. Although these fossils were found in close proximity to Upper Schist limestone, evidence as to age of origin is inconclusive. Limestone chips were collected from the top and bottom of a thirty (30) metre thick limestone unit two (2) kilometres northeast of Lynx Dome. These have been sent to K. Dawson of the Geological Survey of Canada to be examined for the presence of microfossils.

Grit Unit

Rocks belonging to the Grit Unit consist of micaceous quartzite, gritty quartzite, muscovite-sericite phyllite, quartz-chlorite phyllite, graphitic phyllite, argillite and minor limestone and chert. The mottled maroon and green shales described by Green, 1972, were not found in the map area.

The quartzites comprise the bulk of the unit and are commonly brown to mauve with quartz and occasionally feldspar "eyes" up to several millimetres in maximum diameter.

In some outcrops the quartz "grits" have been tensioned out to lengths of up to twenty (20) centimetres. In other outcrops, only half a kilometre away, there is no stretching and the quartz "eyes" remain lensoidal. This straining is associated with the first deformation event which also produced the penetrative foliation.

Bedding is observed two (2) kilometres north of Haggart Dome outlined in a series of large and small "S" folds implying that there is an antiformal culmination to the south. Graded bedding was observed here also (see photo on next page - arrow indicates younging direction) indicating that both overturned and upright beds are found in the area. A more detailed mapping program would be necessary in this area to determine tops.

The probable age for this unit is Precambrian or possibly Cambrian (Green, 1972).

3.1.2 INTRUSIVE ROCKS

Intrusive phases in the Dublin Gulch area are most easily discussed in order of oldest to youngest.

Greenstone

The sheared greenstone bodies observed throughout the Dublin Gulch-Keno Hill area are recognized as being the oldest intrusive phase in the district. Greenstones are best exposed in the Dublin Gulch area (within the Lower Schist formation) where they occur as elongate resistant knobs thoughout the stratigraphic section. They are thought to have been basic sills now altered to varied degrees and commonly exhibit intense shearing along their margins. More strongly deformed greenstones occur as boundins. Injection and deformation of the greenstones is probably synchronous with the oldest regional deformation (S1, F1). Green and McTaggart (1960) suggest that the greenstones may have intruded into the dilated hinge zones of overturned folds.

The composition of the greenstones generally ranges from diorite to gabbro although peridotite has been described. In some units the predominant mineralogy consists of chlorite after amphibole and/or pyroxene. In others a roughly equal amount of chlorite and altered plagioclase is present.

In the Dublin Gulch area greenstones are relatively few in number and outcrop (mainly in the eastern portion of the map area). In the Central Quartzite formation, south of Lynx Dome, a greenstone occurs in two areas near the top of the formation. On the south facing slope, above Lynx Creek, a small greenstone is present, and another is in contact with the Dublin Gulch Stock (on the east side of Stewart Gulch). Numerous greenstone boudins are found near the top of the Lower Schist formation (see Figure 4).

Granodiorite (Quartz Diorite)

The Dublin Gulch Stock is the largest granodiorite body in the Dublin Gulch area and extends as a northeast-southwest elongate body for over five (5) kilometres from Platinum Pup to the Potato Hills. In addition to this large stock, numerous other granodiorite bodies occur about the property. West of Haggart Creek several bodies of medium grained granodiorite are present. In Dublin Gulch at the junction of Olive Gulch, a small granodiorite plug, formerly mapped as quartz monzonite, occurs. Another small plug occurs east of the Potato Hills.

The Dublin Gulch Stock consists of medium to coarse grained, uniformly textured pyroxene-biotite granodiorite. A typical sample contained forty (40) to forty-five (45) percent plagioclase, twenty (20) to twenty-five (25) percent biotite, two (2) to three (3) percent pyroxene and lesser amounts of several accessory minerals (Lennan, op. cit.). Locally coarse Na-feldspar phenocrysts give the rock a porphyritic appearance. The plug at the junction of Olive and Dublin Gulch is a subsidiary of the main stock and differs only in the amount of silica alteration. The small intrusion shows zones of strong silica alteration adjacent to closely spaced quartz veined fractures (see Appendix III, Sample Nos. 4, 7, 9).

Dyke and sill apophyses of the main Dublin Gulch Stock occur both north and south of the intrusion, but are more strongly developed south of the pluton where they are mainly outlined by diamond drilling.

According to F. Marshall Smith, P.Eng., who visited the property in August, 1981; the granodiorite (hornblende diorite) is an "S" type granite derived from partial melting of crustal material possibly due to obductive overthrusting. This granitizing event produced weak calc-silicate skarns in calcic sediments of the calc-silicate hornfels type (L. Dyck and K. Dawson, 1978) or pyrosomatic-magmatic metamorphism (D. Korzhinsky, 1965).

Quartz Monzonite (Aplite/Leucocratic Granite)

A small quartz monzonite plug is located on the lower west side of Ray Gulch. The composition of this plug appears to be richer in biotite near its periphery. The altered quartz monzonite lacks ferro-magnesium minerals but does have clay albite/sericite patches with pseudomorphs of mica in the same proportion as the biotite masses in the fresh float (Smith, 1981). From examinations of the 1980 drill core, there is reason to believe that aplite dykes ranging in thickness from point one (0.1) to three (3) metres, which are found throughout the drill zone, have this quartz monzonite as their parent. These are seen to crosscut the granodiorite or, at times, to follow alongside granodiorite sills. It is postulated that these dykes then reduce to small quartz-aplite then quartz veins, veinlets and finally to dry joints. These fractures have a predominantly east-west strike and a vertical dip and hence do not show up in many of the easterly 1980 diamond drill holes. No outcrop is visible of the contact of this intrusion with the country rock, but it is suspected that because of its isolated anhedral surface expression it is probably a steeply dipping plug. Since the thermal metamorphic aureole is large and since the aplite dykes in the main granodiorite intrusion are thought to be related to this plug, it probably enlarges at depth and dips to the north, underneath the main granodiorite intrusion (see Appendix III, Sample Nos. 3 and 5).

It is suspected that this intrusive phase has carried the tungsten from a hypabyssal magma source to its present location. It resembles one of the rare element bearing leucocratic granites of the type described by Stemprok (1979). He notes that granites high in tungsten are also comparatively high in certain trace elements, such as fluorine, lithium, rubidium, tin, etc.

Samples have been collected for whole rock and geochemical analysis. Quartz monzonite intrusions are associated with other tungsten deposits as well; notably Mactung, Nahanni, Bishop, Logtung, et cetera.

Another small leucocratic quartz monzonite intrusive is found west of Haggart Creek, just south of Gill Gulch. It is seen in outcrop on the slope west of the Haggart Creek - Platinum Pup junction. Its emplacement appears to be structurally related to the swarm of biotite-diorite ('lamprophyre') dykes which splay out westerly from this intrusion. It is suspected that this quartz-monzonite is responsible for tin in the Dublin Gulch area as several high tin values have been noted up to four (4) kilometres north and northeast of this intrusion.

Biotite Diorite ('Lamprophyre')

This mafic phase is seen mostly west of Haggart Creek. It occurs as dykes up to several metres thick that start just west of Haggart Creek and then splay out or swarm westerly over three (3) kilometres towards Secret Creek. These dykes have been reported by Green (1971) and Tempelman-Kluit (1964). Elsewhere these dykes are seen to cut all other intrusive phases and are thus considered to be the youngest intrusive event in the map area.

Quartz-Feldspar Porphyry

Quartz-feldspar porphyry dykes and sills are common in the vicinity of the main pluton, particularly on the northwest side of the Dublin Gulch Stock. These intrusions usually contain altered feldspar phenocrysts ranging in length to five (5) millimetres and various quantities of quartz phenocrysts of about the same size. The groundmass is often strongly altered to clay, sericite and iron oxide. Many of the dykes and sills are highly deformed, predating a period of fault deformation. Age relationships are uncertain.

Quartz-Arsenopyrite Vein Rock

This unit describes the gold and silver bearing quartz-arsenopyrite-pyrite and siderite-pyrite-jamesonite-arsenopyrite veins of the gold-quartz vein-fissure system. These veins strike N70^{o}E (average) and the system is centered on the slope south of Dublin Gulch.

Two types of veins are present. The quartz-arsenopyrite-pyrite veins generally are more abundant east of Haggart Creek. The mineralogy of these veins is varied but includes banded quartz, arsenopyrite as selvages and as cores, pyrite in cores, minor siderite and jamesonite in cores and traces of gold, galena and chalcopyrite. Scorodite and limonite are very common weathering products. Wall rock alteration consists of: (1) a narrow (3-5 metre wide) inner zone of clay-sericite, alunite alteration and (2) a wide (10-40 metre wide) zone of fracture controlled siderite-manganese-limonite.

Siderite-pyrite-jamesonite-arsenopyrite veins are found west of Haggart Creek and include the Peso No. 1 to 6 and the Rex Vein. The mineralogy of these veins is varied but includes siderite as the main gangue mineral and jamesonite, arsenopyrite, pyrite, galena, chalcopyrite, stibnite and tetrahedrite as the main ore minerals. Scorodite, limonite, covellite and malachite are the main weathering products.

This is the youngest mineralizing event in the area and is related to the last mineralizing event of the Dublin intrusive or to an unexposed intrusion. It is similar to vein systems found in Carlin, Nevada and in Oatman, Arizona in that there appears to be "low P.H. caps" and excellent development of clay and siderite haloes on the hanging wall side of mineralized vein faults. The "low P.H. cap" zones are related in size to the degree of mineralization in the vein or veins (Smith, 1981). The great vertical extent of the gold bearing arsenopyrite mineralization from the Potato Hills to the Dublin Gulch valley as well as the variation of the quartz-arsenopyrite mineralization from cherty banded to coarse grained texture indicates repeated pulses of mineralization at both high and low P-T environments.

This is an epithermal or mesothermal system with gold precipitating out first (south of Dublin Gulch) then silver, lead, antimony (northeast and southwest of Dublin Gulch) and successively lighter elements towards the structural top (see also Figure 10).

3.2 STRUCTURAL GEOLOGY

The Dublin Gulch area lies within the central portion of the structural province known as the Selwyn Basin which is bounded by the Mackenzie platform to the east and the Cassiar platform to the west. Two major south dipping thrust faults within the basin separate Proterozoic clastic rocks to the north and south from Mesozoic clastic rocks. The Dublin Gulch property straddles the south "Robert Service Thrust" contact. The region has been elevated to the Greenschist level of metamorphism.

Early geological surveys in the Dublin Gulch - Keno Hill district mapped a simple stratigraphic sequence which was folded into broad structures related to the Mayo Lake anticline. The discovery of fossils in sediments immediately below the Upper Schist formation (Green and Roddick, 1962) destroyed the concept of a conformable Precambrian and/or Paleozoic section. Green first recognized a major fold in the Davidson Range in 1957 and from this came the first concept of the large-scale recumbant folding of the area. This was the first suggestion of deformation of the magnitude required to explain the presence of younger rocks below the Upper Schist formation. Stratigraphic mapping in the Tombstone Range by Tempelman-Kluit (1970) supports the concept of overthrusting of the Upper Schist formation.

3.2.1 REGIONAL STRUCTURE (D. Shaw, Ph.D.)

Introduction

Four separate phases of deformation have been recognized, evidence for the earlier two being much more common than that for the latter two.

Structural fabric in the Dublin Gulch area is dominated by the penetrative foliation associated with the first phase of deformation. Within the shales this foliation completely transposes original, sedimentary layering.

Folds vary in size from the inferred phase one nappe, the limbs of which are measured in terms of kilimetres, to the microscopic crenulations formed during the second phase of deformation.

Phase I

Phase I deformation is recognized by rare, tight to isoclinal minor folds (F_1's) and a very common and penetrative foliation (S_1) orientated parallel to the axial surfaces of the folds. This dominant planar fabric is parallel to compositional layering except in the hinges of F_1's. The fabric was formed both as a result of compressive and shearing stresses. The extent of the shearing and associated cataclasis varies greatly. Mylonites and gleitbrette folds are recognized along with the preservation of original sedimentary structures, i.e. graded grit beds.

At the head of Gill Gulch F_1's plunge at moderate angles towards the east, axial surfaces dip towards the northeast. The folds at this location are structurally positioned on the lower limb of an overturned antiform which is interpreted regionally to be a large nappe structure (Figure 4).

Phase II

Phase II folds (F_2's) are the most common in the area and are generally open to tight, with hinge thickening being characteristic. Limb length and fold wavelength vary from a scale of centimetres to kilometres.

On Haggart Dome and to the north three large F_2's have been interpreted. These folds have an average strike direction of two hundred eighty (280) degrees, axial surfaces dip steeply towards the northeast. Fold outlines are asymmetric, the northern limb of the antiforms being longer and less steeply dipping than the southern limbs. Strata involved in the southern limb of one of the three antiforms have a younging direction, deduced using graded bedding towards the north, indicating an overturned sequence. A less distinct graded bedding attitude on the northern limb of the same fold, however, indicates upright beds. Further work is required in the area to ascertain whether Dublin Gulch is located on the lower or the upper limb of a larger and earlier (presumably Phase I) fold (see Photo No. 1 - arrow indicates younging direction).



PHOTO NO. 1. Graded Bedding in Grit Unit, North of Haggart Dome (see Figure 4).

The structural position of the Haggart Dome fold series is on the northern limb of a major antiform. Their outline is that of 'S' folds indicating that there is an antiformal culmination to the south. Such a culmination may be the one mapped in the Dublin Gulch area.

Phase III

Minor Phase III folds (F_3's) on the western slopes of Tin Dome deform the axial surfaces of F_2's. The structural location of the former was not determined, that of the latter is on the steeply dipping, southerly limb of an antiform.

Phase IV

Kink bands are commonly developed and appear to cut across previously described structures. They are probably a late feature produced as a result of stress relaxation within the region.

3.2.2 DETAILED STRUCTURE AND STRATIGRAPHY, DUBLIN GULCH

Deformation and Folding

The first phase of deformation is recognized by rare inclinal folds and a strong penetrative foliation (S_1) orientated parallel to the axial surfaces of F_1 folds which are predominately parallel to compositional layering. Shearing and cataclasis are common but are erratically distributed along various compositional layers.

Second phase (F_2) minor folds (folding F_1 foliation) imply an anticlinal culmination to the south of Haggart Dome, similar to the Haggart Dome F_2 nappe fold whose axial trace is interpreted to pass through the main Dublin Gulch intrusive (Lynx Creek anticline).

The Lynx Creek anticline, a broad open fold with a shallow east-west axial trace passes through the Dublin Gulch drill area and may have controlled intrusive emplacement. It is parallel to the McQuesten River anticline and subsidiary to the Mayo Lake fold. This event may be linked to the phase two folding but more mapping to the south is needed to outline this relationship.

Stratigraphy and Facies Relationship

Detailed geological mapping of the cliffs west of Ray Gulch show that thick (greater than five (5) metre) marble beds and thick sequences of

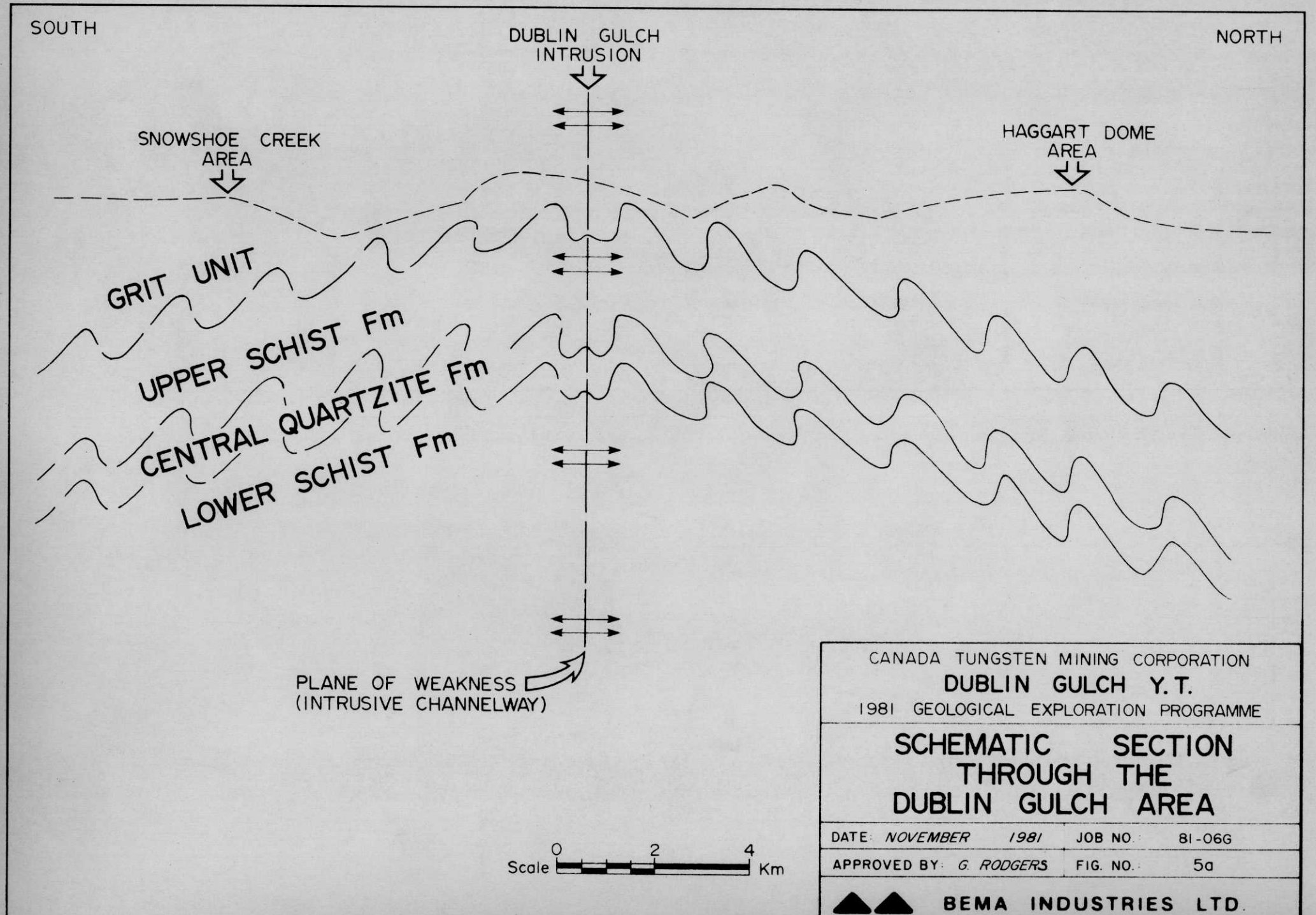
calc-silicate hornfels can be mapped over distances of at least three hundred (300) metres. The original stratigraphy was probably a shallow water interbedded and interfingering sequence of shale-siltstone-limestone. Penetrative foliation has developed mainly parallel to compositional layering with mylonites and gleitbrett folds but the basic overall original interbedded sequence has been more or less preserved. This sequence was then altered to a wide biotite and calc-silicate hornfels zone adjacent to the Dublin Gulch granodiorite and selectively replaced by iron-tungsten rich fluids to form the dark green skarn (see Figures 12, 13a and 13b and also Photo No. 2).

Faulting

Templeman-Kluit (D.I.A.N.A., 1981) has connected the fault that has presumably thrust the Upper Schist formation over the Central Quartzite formation with other areas north and northwest within the Selwyn Basin. He names this fault the Robert Service thrust fault and has dated it as occurring during the Laramide orogeny (Upper Cretaceous-Tertiary). This fault passes five (5) kilometres east of the main Dublin Gulch ore zone and dips west, underneath this zone. This fault may have also played a role in localizing the intrusive events.

A major north-south normal fault is interpreted to coincide with Haggart Creek. Another possible north-south fault apparently coincides with Ray Gulch displacing a thick skarn bed at the top of the gulch. It then either truncates the northeast tip of the granodiorite stock, or bisects the Potato Hills.

From the regional mapping a major east-west anticlinal axis (the Lynx Creek anticline) is interpreted to pass just south of the main Dublin Gulch ore zone. Paralleling this axial trace are joints seen every few metres on the cliffs west of Ray Gulch. These joints are similar to those that form at right angles to the axis of compression when the load is released. If these joints were the result of the intrusive doming or the result of cooling and shrinkage of the intrusive mass then one would expect that they would radiate out from the intrusive center or perhaps be parallel to it. Instead, this east-west vertically dipping joint set is parallel and continuous over a width of more than a kilometre. It is hypothesized that the anticlinal axis structurally controlled the emplacement of the underlying intrusive bodies and that during their actual emplacement, these east-west joints were created. These joints then helped channel tungsten bearing fluids to their present location penacontemporaneously.



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DUBLIN GULCH Y.T.

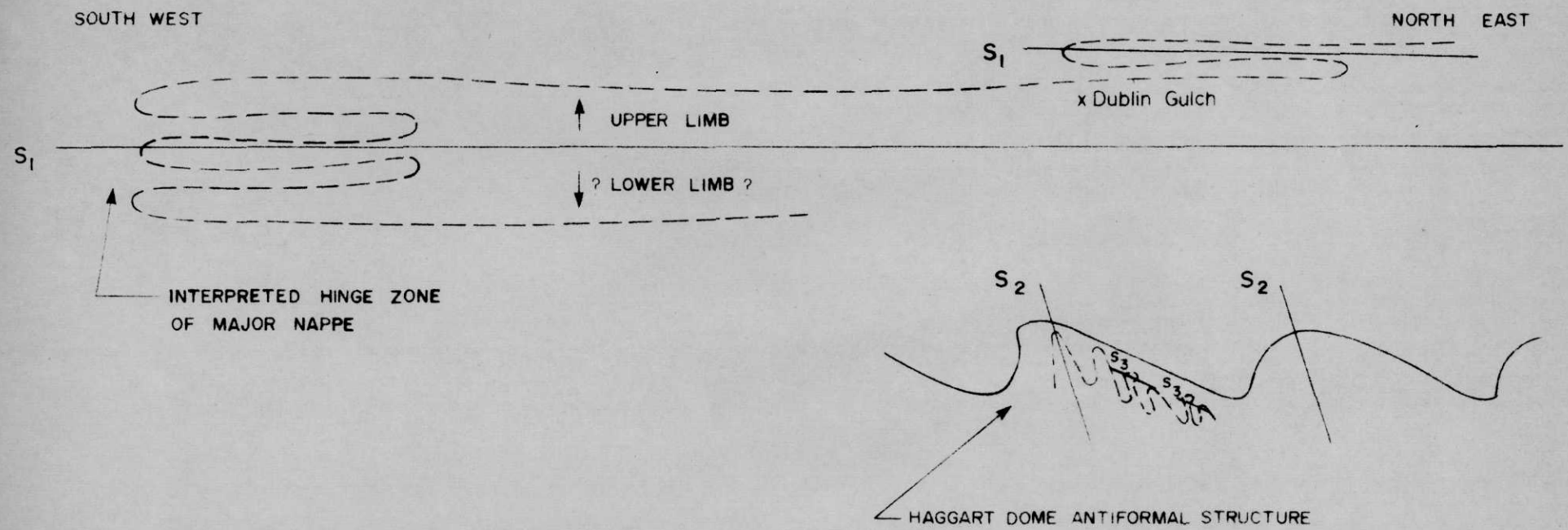
1981 GEOLOGICAL EXPLORATION PROGRAMME

SCHEMATIC SECTION THROUGH THE DUBLIN GULCH AREA

DATE: *NOVEMBER 1981*	JOB NO.	81-06G
APPROVED BY: *G. RODGERS*	FIG. NO.	5a

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Scale 0 1 2 Km

CANADA TUNGSTEN MINING CORPORATION

DUBLIN GULCH

1981 GEOLOGICAL EXPLORATION PROGRAMME

SCHEMATIC SECTION
TO ILLUSTRATE THE RELATIONSHIP
OF THE VARIOUS FOLD PHASES

DATE: NOVEMBER 1981	JOB NO.: 81-06 G
GEOLOGY D. SHAW	FIG. NO.: 5

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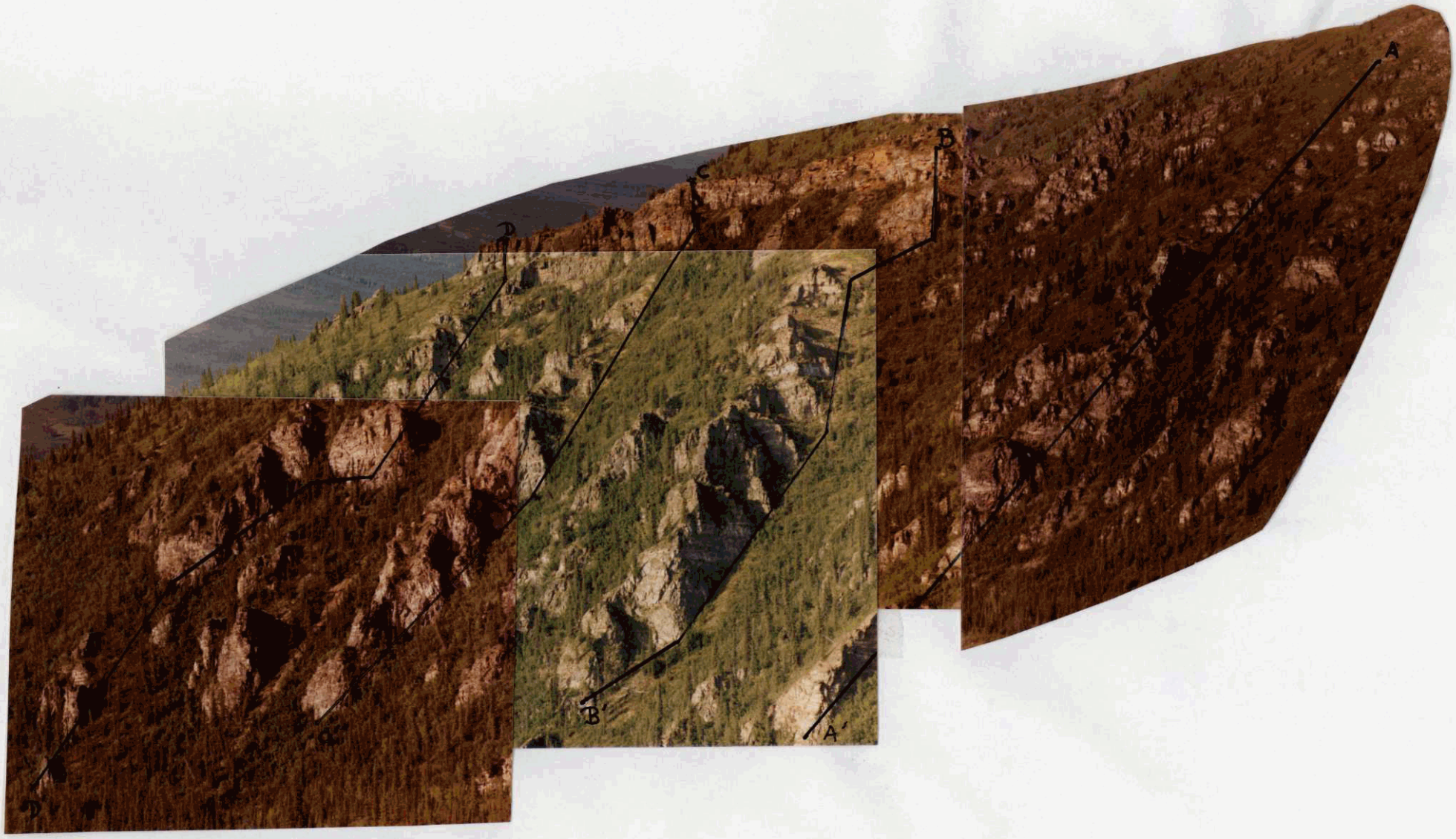


PHOTO NO. 2. Ray Gulch (Looking West), (see Figures 4 and 12).

3.3 MINERALIZATION

3.3.1 ORIGIN OF TUNGSTEN MINERALIZATION

Two types of skarn have formed at Dublin Gulch. A light green wollastonite-quartz skarn or calc-silicate hornfels (Dick-Dawson, 1978) has replaced impure marble beds within the Grit Unit. This skarn in turn has been sporadically replaced by a dark green pyroxene rich skarn containing scheelite.

The wollastonite-quartz skarn is composed of wollastonite, quartz, ferrosalite, feldspar, calcite, chlorite, grossular garnet, scapolite and titanite. Wollastonite is the most abundant mineral, commonly about fifty (50) percent (Orssich, 1980). Pyroxene is present from five to ten (5 to 10) percent and gives the rock its pale green colour.

This skarn is found within the thermal aureole of the Dublin Gulch granodiorite intrusion. It was formed during circulation of connate and meteoric waters caused by the advancing convective heat front of the uprising intrusion. The surrounding country rock consisting of micaceous quartzite, muscovite-sericite phyllite, graphitic phyllite, and minor limestone had been thermally metamorphosed to inter-laminated biotite-quartzite schist.

The beds of impure limestone and marble acted as traps for reactive fluids and became replaced to form the light green wollastonite-quartz skarn (calc-silicate hornfels), (see hornfels zone, Figures 6-7). Granodiorite has been observed cross cutting this skarn and this implies that this first stage of skarn formation occurred prior to the final emplacement of the granodiorite.

Light green skarn has been noted as occurring within schist as well as within marble. According to Orssich (1980), the composition of the light green skarn lies intermediate between schist and marble and could be approximated by adding about 18 weight percent CaO to the schist with an equivalent reduction in all other components. This composition could be attained without requiring addition of elements from the intrusion but rather by calcium metasomatism in which CaO moved from the marbles into the schists. The foliation within the light green skarn shows preferential alignment with that in the adjacent country rock implies a gentle replacement with fluids flowing parallel to foliation.

The surface outline of this 'hornfelsic' zone is irregular in shape. It is almost one (1) kilometre wide on the west side of the Dublin Stock in shape and two (2) kilometres wide on the east side. This implies a shallower dip on the east side of the intrusive than on the west side. The formation of

the biotite-quartzite hornfels zone required stress as well as heat and this was provided by the upward thrusting and doming effect of the granodiorite intrusion.

The dark green skarn has been differentiated into two types. According to Orssich (1981) two different compositions of dark green skarn are common. They are:

1. An iron rich skarn composed of (in decreasing order of abundance): hedenbergite, quartz, iron-rich amphiboles ranging from actinolite to ferrohastingsite, calcite, feldspars, scapolite, scheelite, grossular garnet, chlorite, titanite, apatite, allanite, vesuvianite and clintonite.

2. A siliceous skarn composed of (in decreasing order of abundance): quartz, clinopyroxene, light green amphiboles ranging from antinolite to common hornblende, feldspar, calcite, chlorite, scheelite, titanite, allanite, apatite. Grossular garnet, vesuvianite and clintonite may be present.

The components were probably transported by infiltration metasomatism in which the components were transported in a moving fluid medium that percolated through the rock.

The dark green skarn is found replacing light green skarn along fractures, layers parallel to bedding planes and wherever tungsten-iron bearing fluids have penetrated. It replaces more massive marble beds as well.

Two hypothesis are presented for the formation of the Dublin Gulch tungsten skarn deposits:

1. The quartz, quartz-aplite, aplite veins and dykes entering the rock on east-west fractures, hydrothermally altered the limey hornfels or limestone to diopside skarn and probably carried most of the tungsten to the skarn (Smith, 1981). East-west, vertically dipping joints and fractures are seen every few metres from the bottom of Ray Gulch up to its headwaters. Oftentimes these are filled with quartz and occasional aplitic material. It is believed that these dykes and veins/veinlets emanate out from an underlying intrusive which was emplaced at a later stage than the main granodiorite. The quartz-monzonite in Lower Ray Gulch is probably a large apophysis of this underlying intrusive.

2. The Dublin Gulch granodiorite stock was emplaced slowly into the Upper Schist - Lower Grit Unit. Initial thermal metamorphism occurred over a wide front altering rocks up to two (2)

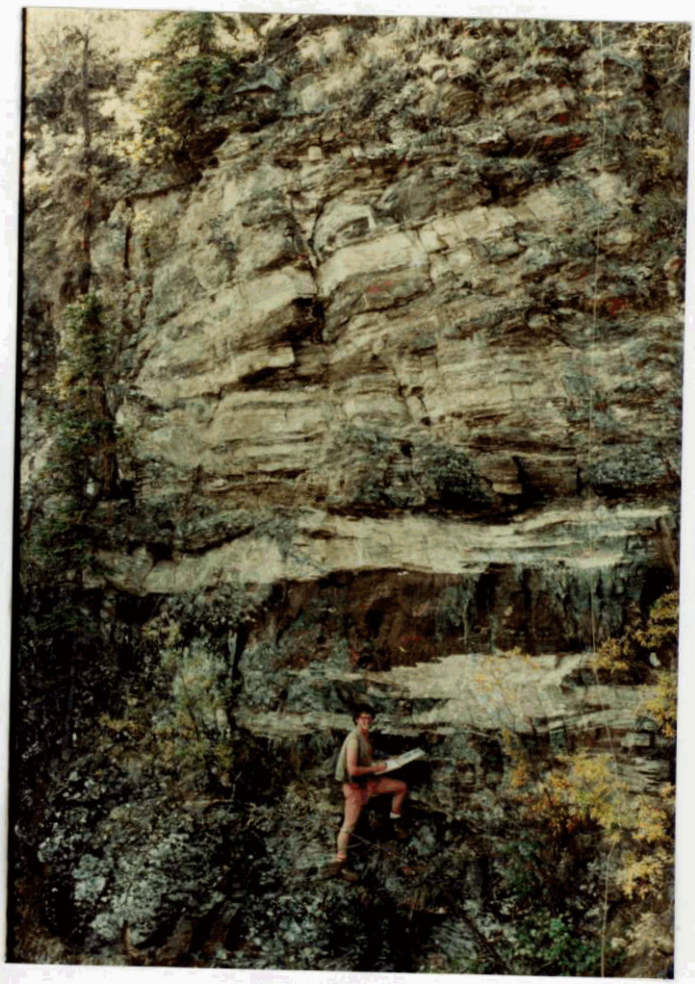


PHOTO. NO. 6

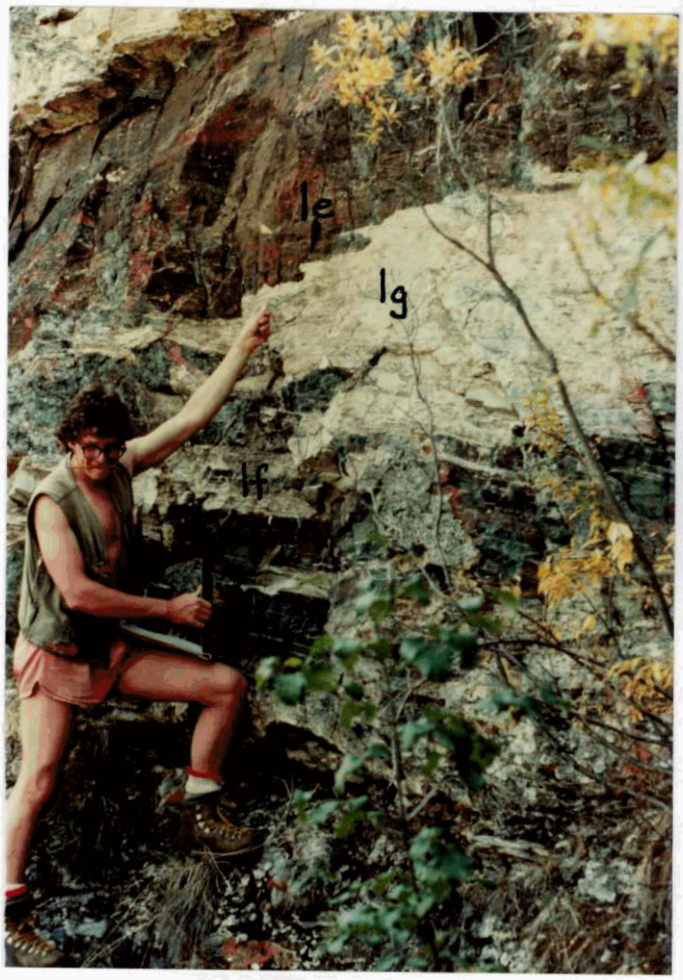


PHOTO NO. 5.

Cliff Face Close to the Bottom of Section DD' Showing Erratic Replacement of Marble (1g) and Wollastonite-Quartz Skarn (1f) by the Tungsten Bearing Dark Green Skarn (1e).

kilometres distance to a biotite hornfels and calc-silicate hornfels assemblage. The advancing intrusive was a sheet-like body with step-like thick tapering sills on the eastern margin implying a passive injection with assimilation of the biotite quartzite schist-biotite hornfels being more preferable to the calcium rich rocks. The slow cooling intrusive accumulated iron and tungsten rich fluids and these fluids were passively channelled along lines of weakness probably coincident with the projected Lynx Creek anticline. The fluids ascended until they encountered calcium rich rocks where both iron and tungsten were precipitated. Movement was primarily along zones of bedding plane weakness within the calc-silicate hornfels rocks or marble units. The main stage of iron tungsten metasomatism resulted in the formation of pyroxene rich scheelite skarns. This event was followed by the intrusion of late leucocratic quartz porphyry dykes with associated coarse grained quartz-scheelite veins along the same vertical fracture zones. This may have been a later intrusion or maybe a more felsic derivative of the main stock. The sericitized mafics in Lower Ray Gulch leucocratic quartz monzonite in the same proportion as the main stock indicate a late silicious phase of the main intrusive rich in volatiles.

The scheelite bearing skarn is notably lacking in any significant amount of pyrite, pyrrhotite and chalcopyrite. It is hypothesized that the sulphur was driven off early during the ascent of the intrusive liquids and that the intrusion was sulphur deficient at its present position.

The dark green skarn contains abundant alumina rich garnet whereas garnets in the light green skarn are less common and are more iron rich.

3.3.2 OCCURRENCE OF TUNGSTEN MINERALIZATION

The most important occurrence of scheelite bearing dark green skarn is found at depth just north of the headwaters of Olive Gulch. This was the target for the 1981 diamond drill program. Drill indicated ore reserves from this program are shown in Table 1.

Scheelite skarn and quartz-scheelite stockwork mineralization is concentrated in a confined structural zone near the main Dublin Gulch stock. Fractures seem to form a conjugate north-south east-west set which may be the prime control of mineralization.

TABLE #1

ORE RESERVE SUMMARY

Drill-indicated, mineable ore reserves are:

GRADE WO_3%	SHORT TONS	AVERAGE GRADE WO_3%	SHORT TON UNITS
over 1.00	632,777	1.399	884,943
0.80 - 1.00	337,469	0.810	273,263
0.70 - 0.80	274,503	0.723	198,435
0.60 - 0.70	426,500	0.523	223,049
0.40 - 0.60	952,522	0.419	398,780
0.20 - 0.40	1,510,439	0.208	314,167
TOTAL	4,134,210	0.555	2,292,637

Depending on selective cut-off grades, ore reserves may be shown as follows:

GRADE WO_3%	SHORT TONS	AVERAGE GRADE WO_3%	SHORT TON UNITS
over 0.80	970,246	1.194	1,158,206
over 0.70	1,244,749	1.090	1,244,749
over 0.60	1,671,249	0.945	1,579,690
over 0.40	2,623,771	0.754	1,978,470
over 0.20	4,134,210	0.555	2,292,637

(Kay, 1881)

From the geological sections drawn of the west side of Ray Gulch one of the two (2) major (greater than five (5) metres) limy beds was traced for a lateral distance of approximately three hundred (300) metres. This bed consists of marble with sporadic light green skarn and minor dark green skarn (see Figure 12 and also photos on page following). Thus the concept of tight recumbent carinate folding as proposed in 1980 has changed in that it has been proved that the original stratigraphy has been preserved (see Drill Section 13a and 13b). Smaller limy units (less than five (5) metres), however, pinch or horsetail out and their lateral extent is not predictable.

Near 39 + 025E and 8 + 350N (near the Lower Ray Gulch intrusion) a large outcrop of dark green skarn occurs. This outcrop was sampled extensively and assays average zero point zero-one (0.01) percent of coarse grained scheelite. This outcrop measures approximately fifty (50) metres in length and eight (8) metres in vertical section and is within a major limy bed. Ray Gulch stratigraphy dips northwest underneath the area of 1980 drilling. It is predicted that more limy units and potential scheelite bearing horizons lie beneath the drilling done in 1979 - 1980 and also to the south and south-east of the area already drilled in 1979 - 1980.

Scheelite bearing dark green skarn float has been found in abundance around the south and east periphery of the Lower Ray Gulch intrusion. It has also been found frequently over the slopes and ridge just east of Ray Gulch.

Scheelite occurs also in association with the late-stage quartz veins and quartz vein breccias that were introduced into faults and fissures. The scheelite is typically in the form of subhedral to euhedral crystals that range in sizes up to several centimetres across. Fine to coarse scheelite crystals have also been observed in dry fractures and shears, particularly in the granodiorite unit. This was the target of the 1971 exploration program by Canex Placer Ltd.

3.3.3 GOLD MINERALIZATION

The Dublin Gulch granodiorite intrusive and the country rock to the southwest and northeast are cut by a vein fault and fissure system hosting quartz-aresenopyrite-scorodite material with significant gold values.

This system appears to be the youngest event of primary mineralization It is an epithermal-mesothermal hydrothermal vein system with gold precipitating out of solution before silver and lead. It is possible that the area between Haggart Creek and Potato Hills has been block faulted up so that the gold level of this sytem has been exposed. Southwest of Haggart Creek and northeast of Potato Hills the silver-lead level of this vein system are evident. The gold is probably related to late silicious hydrothermal fluids which originated from under the Dublin stock, or possibly from an underlying Tertiary granite.

For greater detail on this component of the Dublin Gulch mineralization, the reader is referred to Bartlett, S. C. (1980) (see Appendix B).

3.3.4 TIN MINERALIZATION

The quartz monzonite intrusive just west of the Platinum Gulch - Haggart Creek junction is thought to resemble a 'tin granite' because of its cusping or arcuate plan view. Tin showings are found north of this intrusive also: (1) in trenches south of Ironrust Creek; (2) in shear zones and in placer concentrates in Gill Gulch; (3) in a shear zone just west of the Haggart Creek - Dublin Gulch junction; and (4) in a shear zone on Tin Dome.

The presence of exotic minerals in the Dublin Gulch granodiorite such as zircon, scheelite, tourmaline suggests that this granite is of the 's' type or continental-derived. There are probably differentiates of this granodiorite that are carrying tin (Smith, 1980).

In 1945 it was reported (Clayton, 1945) that tin lines were found in the spectrograph analysis of chips of the granodiorite from Dublin Gulch. A whole rock analysis plus geochemical analysis for elements of interest is presently being done on rock samples from this intrusive.

3.3.5 TIN DOME

Recent information has been obtained from Cominco on work done by them in 1945 on Tin Dome.

> "On Tin Dome the showing strikes N20°E and dips vertically following a soft gouge seam about one (1) foot wide. It follows the gouge seam for ninety (90) feet and can be followed another ninety (90) feet southward until terminated by a small fault. Leading off from this zone are several veins none of which extends very far. The principal one in which the showing occurred strikes N70°W and was traced for three hundred fifty (350) feet. An adit was driven in this shear for fifty-six (56) feet and showed crushed sediments, and vein quartz with gouge, but no cassiterite. Fine cassiterite can be seen occurring only in the upper part of this showing.
>
> Of thirty-four (34) samples taken (1945)
>
> 21 ran greater than 0.1% Sn
>
> 8 ran from 0.1 to 0.4% Sn
>
> 4 ran from 0.4 to 1.0% Sn
>
> and 1 ran 1.8% Sn
>
> (Taken from - The Consolidated Mining and Smelting Company of Canada Ltd.
>
> Engineering Report No. 4
> G. E. Clayton, October 17, 1945)

The Tin Dome Shear appears to be near the pneumatolitic roof of an unexposed tin bearing granite. The depth from surface to significant tin mineralization could be great.

3.3.6 SILVER-LEAD-ANTIMONY MINERALIZATION

The Dublin Gulch gold vein - fissure system is centered on the hillside south of Dublin Gulch. This system strikes (on average) azimuth 070°. Silver-lead-antimony mineralization marks the ends (top) of this system and extends ten (10) kilometres northeast to Lynx Dome and ten (10) kilometres southwest to the Peso Silver Mines Ltd. property. At the Peso Silver Mines property a suite of up to six (6) veins grade up to seventy-three (73) ounce per ton Ag and forty-five (45) percent Pb. To the northeast Mayo Silver Mines mined out a small silver vein that graded up to forty-four point six (44.6) ounce per ton Ag, forty-six point three (46.3) percent Pb and seven point five (7.5) percent Sb. This vein is presently covered by the C. J. twelve (12) and fourteen (14) claims (see Figure 14).

4.0 GEOCHEMISTRY

General

Heavy mineral sampling was carried out of all major drainages within and peripheral to the claim group. To accomplish this a fifteen (15) pound minus ten (10) mesh sample was taken from every major creek junction. Later, these samples were concentrated on a Diester Concentrating Table (Wilfley Table) to approximately five to six (5 to 6) ounces. These concentrates were then sent to Chemex Labs Limited for atomic absorption analyses for tungsten, gold and tin. A corresponding silt sample was taken at the same location and analysed for lead and silver (see Figures 15-17).

Conventional soil sampling was carried out between the existing lines of the main Dublin Gulch grid and in more detail over a grid covering the lower Ray Gulch intrusive. A grid was cut and soil samples taken over the north slope of Gill Gulch (see Figures 18-21).

Rock samples were taken for assay after trenching was completed over the eastern margin of the main Dublin Gulch drill zone (see Figure 11).

Rock chip sampling and soil geochemistry samples were taken over a neighbouring tungsten showing just outside of the eastern margin of the claim block.

5.0 CONCLUSIONS

The 1981 Dublin Gulch exploration program began with a program of regional geological mapping and geochemical prospecting. Later in the season work focused in on areas of interest with the intention of evaluating mineral occurrences and of locating future drill targets.

Regional geological mapping confirmed that the Dublin Gulch ore zone lies within Grit Unit sediments, just west of their contact with the Upper Schist formation.

This mapping program allowed five (5) years' assessment credit to be applied to five hundred ninety (590) of the one thousand, seventy (1,070) claims. This regional overview led to a more confident understanding of the detailed geology in areas of interest. Four (4) phases of structural deformation have been recognized, the second of which is believed to be responsible for the intrusive emplacement and structural control in the vicinity of the Dublin Gulch ore zone. Stratigraphic correlations were made in Ray Gulch which indicate that structural deformation here is not as complex as earlier presumed. Thus mineralized skarn zones are thought to be more continuous then previously reported in the 1980 report. A re-calculation of ore reserves has been completed by Mr. B. Lennon and a revised geological interpretation of the drill geology has been initiated. Two (2) sections are included in this report (see Figures 13a and 13b).

Heavy mineral geochemical sampling outlined several areas anomalous in tungsten tin and gold. All the Dublin Gulch pups and Ray Gulch showed high tungsten and gold values. Creeks draining the HIT intrusion (AMAX) showed high tungsten and occasionally high gold values. This area was also the subject of a detailed prospecting and geochemical sampling survey. High gold and tungsten values came from a south tributary of Skate Creek. Gill and Fisher Gulch were anomalous in tin (see Figures 15, 16, 17).

Rock geochemistry has delineated areas anomalous in tin south of Ironrust Creek, on Tin Dome and near the mouth of Gill Gulch.

6.0 RECOMMENDATIONS

6.1

No further work should be done on:

a) WEASEL claims east of Ski Creek,

b) on C.J. Claims north of the HIT intrusion (except in the vicinity of the old Mayo Silver Mines-silver vein),

c) on the JEFF and BOB claims north of Haggart Creek.

The geochemical sampling done over these areas gave no anomalies and outcrop is scarce. No known mineralization is known to exist on or near these claims.

6.2

All recommendations listed by Bartlett, S. C. (1980) for the gold-quartz vein-fissure system at Dublin Gulch should be carefully reconsidered. A program designed to test the potential of the gold bearing quartz arsenopyrite veins adjacent to the Dublin Gulch stock is as follows:

a) caterpillar trenching,

b) detailed mapping of the exposed veins and alteration assemblages,

c) a test survey of Induced Polorization or Resistivity,

d) several diamond drill holes.

6.3

A road should be built from the Dublin Gulch drill zone down the ridge between Pudsey Pup and Ray Gulch to about the one thousand (1,000) metre elevation.

From this road diamond drill sites should be set up on the ridge just west of the Lower Ray Gulch skarn outcrop and around the periphery of the Lower Ray Gulch intrusive.

6.4

Diamond drilling is recommended southeast and north of the holes already drilled in 1979 - 1980. The holes should be drilled to expand ore reserves in zones already outlined and test for additional mineralized skarn zones beneath the stepped granitic sills.

In at least one (1) location diamond drill holes should be drilled between the 1980 drill holes. This would test the validity of interpretations made between the 1980 fifty (50) metre drill hole spacings.

At least one (1) deep diamond drill hole is recommended for the Dublin Gulch drill zone. This would test the theory that these sheets probably continue with depth and that potential for more tungsten bearing units between these is great.

Several diamond drill holes should be drilled on the ridge in the vicinity of the Lower Ray Gulch intrusion and also around the southeast periphery of this intrusion.

At least one (1) diamond drill hole should be drilled within the Dublin stock to test the potential of the quartz veins hosting scheelite mineralization. At 38 + 300E, 10 + 800N there is an area which is anomalous in tungsten that could be readily tested by a drill hole drilled to the northwest.

6.5

Further trenching should be carried out over the main Dublin Gulch "drill zone" in order to check diamond drill holes projections, test the grade of the ore, and prospect for unknown tungsten bearing units.

6.6

Caterpillar trenching and detailed mapping should be done on the ridge and slopes east of Ray Gulch in order to evaluate the small skarn outcrops and the many occurrences of scheelite bearing float found there. Trenching should also be tried around the southeast periphery of the Lower Ray Gulch intrusion (although overburden thickness here is thought to be great).

6.7

A bulk sample of the dark green scheelite bearing skarn units should be taken. The sample should be larger than the ones taken in 1980 (in the order of fifty (50) tons). This could be studied at the Colorado School of Mines in Boulder, Colorado, for grade and efficiency of milling.

6.8

Evaluate the current geological field and whole rock information at Dublin Gulch to determine if the small stocks to the west of the granodiorite stock are possible tin carriers and the possible styles of tin mineralization that may occur in the area (Smith, 1981). Whole rock samples are currently being analysed.

6.9

Creeks high in tin should be further prospected to find pebble tin. Soils upslope of this pebble tin should be panned and the results of this used to locate trenching targets. Contour soil sample lines at several elevations are recommended to zero in on anomalous areas. Trenching might then uncover cassiterite-bearing veins similar to that on Tin Dome. No further work is recommended for Tin Dome due to the discouraging results reported by Cominco Ltd. in their underground adit exploration of the outcropping tourmaline-cassiterite breccia zone.

6.10

Evaluate the current geological field and whole rock information at Dublin Gulch to determine if the small stocks to the west of the granodiorite stock are possible tin carriers and the possible styles of tin mineralization that may occur in the area (Smith, 1981). Whole rock samples are currently being analysed.

6.11

Creeks high in tin should be further prospected to find pebble tin. Soils upslope of this pebble tin should be panned and the results of this used to locate trenching targets. Contour soil sample lines at several elevations are recommended to zero in on anomalous areas. Trenching might then uncover cassiterite-bearing veins similar to that on Tin Dome. No further work is recommended for Tin Dome due to the discouraging results reported by Cominco Ltd. in their underground adit exploration of the outcropping tourmaline-cassiterite breccia zone.

Report by:

Glen M. Rodgers, B.Sc.
Geological Engineer

Per

G. D. Nordin, B.Sc.
Senior Geologist

GMR/vk

STATEMENT OF QUALIFICATIONS

I, GLEN M. RODGERS OF BEMA INDUSTRIES LTD. DO HEREBY CERTIFY THAT:

1. I am a graduate of the University of Manitoba and hold the following degrees:

   B.Sc. Geological Engineering

2. I have practised my profession as a geologist since 1977.

3. I have no interest, direct or indirect, in the property or shares of Canada Tungsten Mining Corporation Limited nor do I expect to receive any such interest.

4. That the information contained in this report is both true and correct to the best of my knowledge.

Signed: _____
Glen M. Rodgers, B.Sc.
Geological Engineer

DATE: 30/11/81

BEMA
Industries Ltd.

STATEMENT OF QUALIFICATIONS

I, GARY D. NORDIN OF BEMA INDUSTRIES LTD. DO HEREBY CERTIFY THAT:

1. I am a graduate of the University of Alberta and hold the following degrees:

   B.Sc. Honors Geology, 1970.

2. I am a member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta, and a fellow of the Geological Association of Canada.

3. I have practised as a professional geologist since 1970, gaining a wide variety of geological experience with mining companies, petroleum companies and the British Columbia government.

4. I have no interest, direct or indirect in the property or shares of Canada Tungsten Mining Corporation Limited nor do I expect to receive any such interest.

5. That the information contained in this report is both true and correct to the best of my knowledge.

signed: _____
G. D. Nordin, B.Sc.
Senior Geologist

date: _____

APPENDIX 'A'

MINERAL CLAIM STATUS

(Canada Tungsten Mining Corporation Limited, Dublin Gulch Project)

DUBLIN GULCH CLAIMS

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
ALEC 1	YA 30048	October 1, 1990
ALEC 2	YA 30049	October 1, 1990
ALEC 3	YA 30050	October 1, 1990
ALEC 4	YA 30051	October 1, 1990
ALEC 5	YA 30052	October 1, 1990
ALEC 6	YA 30053	October 1, 1990
ALEC 7	YA 30054	October 1, 1990
ALEC 8	YA 30055	October 1, 1990
ALEC 9	YA 30088	October 1, 1990
ALEC 10	YA 30089	October 1, 1990
ALEC 11	YA 30090	October 1, 1990
ALEC 12	YA 30091	October 1, 1990
ALEC 13	YA 30092	October 1, 1990
ALEC 14	YA 30093	October 1, 1990
ALEC 15	YA 30094	October 1, 1990
ALEC 16	YA 30095	October 1, 1990
ALEC 17	YA 30096	October 1, 1990
ALEC 18	YA 30097	October 1, 1990
ALEC 19	YA 30098	October 1, 1990
ALEC 20	YA 30099	October 1, 1990
ALEC 21	YA 30100	October 1, 1990
ALEC 22	YA 30101	October 1, 1990
ALEC 23	YA 30102	October 1, 1990
ALEC 24	YA 30103	October 1, 1990
ALEC 25	YA 30104	October 1, 1990
ALEC 26	YA 30105	October 1, 1990
ALEC 27	YA 30106	October 1, 1990
ALEC 28	YA 30107	October 1, 1990
ALEC 29	YA 30108	October 1, 1990
ALEC 30	YA 30109	October 1, 1990
ALEC 31	YA 30110	October 1, 1990

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
ALEC 32	YA 30111	October 1, 1990
ALEC 33	YA 30112	October 1, 1990
ALEC 34	YA 30113	October 1, 1990
ALEC 35	YA 30114	October 1, 1990
ALEC 36	YA 30115	October 1, 1990
ALEC 37	YA 30116	October 1, 1990
ALEC 38	YA 30117	October 1, 1990
ALEC 39	YA 30118	October 1, 1990
ALEC 40	YA 30119	October 1, 1990
ALEC 41	YA 17996	October 1, 1990
ALEC 42	YA 17997	October 1, 1990
ALEC 43	YA 17998	October 1, 1990
ALEC 44	YA 17999	October 1, 1990
ALEC 45	YA 18000	October 1, 1990
ALEC 46	YA 18001	October 1, 1990
ALEC 47	YA 18002	October 1, 1990
ALEC 48	YA 18003	October 1, 1990
ALEC 49	YA 18004	October 1, 1990
ALEC 50	YA 18005	October 1, 1990
ALEC 51	YA 18006	October 1, 1990
ALEC 52	YA 18007	October 1, 1990
ALEC 53	YA 30008	October 1, 1990
ALEC 54	YA 30009	October 1, 1990
ALEC 55	YA 30010	October 1, 1990
ALEC 56	YA 30011	October 1, 1990
ALEC 57	YA 30012	October 1, 1990
ALEC 58	YA 30013	October 1, 1990
ALEC 59	YA 30014	October 1, 1990
ALEC 60	YA 30015	October 1, 1990

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
BOB 1	YA 17729	October 1, 1990
BOB 2	YA 17730	October 1, 1990
BOB 3	YA 17731	October 1, 1990
BOB 4	YA 17732	October 1, 1990
BOB 5	YA 17733	October 1, 1990
BOB 6	YA 17734	October 1, 1990
BOB 7	YA 17735	October 1, 1990
BOB 8	YA 17736	October 1, 1990
BOB 9	YA 17737	October 1, 1990
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BOB 11	YA 17739	October 1, 1990
BOB 12	YA 17740	October 1, 1990
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BOB 27	YA 17755	October 1, 1990
BOB 28	YA 17756	October 1, 1990
BOB 29	YA 17757	October 1, 1990
BOB 30	YA 17758	October 1, 1990
BOB 31	YA 17759	October 1, 1990
BOB 32	YA 17760	October 1, 1990

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
BOB 33	YA 17761	October 1, 1990
BOB 34	YA 17762	October 1, 1990
BOB 35	YA 17763	October 1, 1990
BOB 36	YA 17764	October 1, 1990
BOB 37	YA 17765	October 1, 1990
BOB 38	YA 17766	October 1, 1990
BOB 39	YA 17767	October 1, 1990
BOB 40	YA 17768	October 1, 1990
BOB 41	YA 17769	October 1, 1990
BOB 42	YA 17770	October 1, 1990
BOB 43	YA 17771	October 1, 1990
BOB 44	YA 17772	October 1, 1990
BOB 45	YA 17773	October 1, 1990
BOB 46	YA 17774	October 1, 1990
BOB 47	YA 17775	October 1, 1990
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BOB 52	YA 17780	October 1, 1990
BOB 53	YA 17781	October 1, 1990
BOB 54	YA 17782	October 1, 1990
BOB 55	YA 17783	October 1, 1990
BOB 56	YA 17784	October 1, 1990
BOB 57	YA 17785	October 1, 1990
BOB 58	YA 17786	October 1, 1990
BOB 59	YA 17787	October 1, 1990
BOB 60	YA 17788	October 1, 1990
BOB 61	YA 17789	October 1, 1990
BOB 62	YA 17790	October 1, 1990
BOB 63	YA 17791	October 1, 1990
BOB 64	YA 17792	October 1, 1990

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
BOB 65	YA 17793	October 1, 1990
BOB 66	YA 17794	October 1, 1990
BOB 67	YA 17795	October 1, 1990
BOB 68	YA 17796	October 1, 1990
BOB 69	YA 17797	October 1, 1990
BOB 70	YA 17798	October 1, 1990
BOB 71	YA 17799	October 1, 1990
BOB 72	YA 17800	October 1, 1990
BOB 73	YA 17801	October 1, 1990
C.J. 1	YA 42532	September 2, 1986
C.J. 2	YA 42533	September 2, 1986
C.J. 3	YA 42534	September 2, 1986
C.J. 4	YA 42535	September 2, 1986
C.J. 5	YA 42536	September 2, 1986
C.J. 6	YA 42537	September 2, 1986
C.J. 7	YA 42538	September 2, 1986
C.J. 8	YA 42539	September 2, 1986
C.J. 9	YA 42540	September 2, 1986
C.J. 10	YA 42541	September 2, 1986
C.J. 11	YA 42542	September 2, 1986
C.J. 12	YA 42543	September 2, 1986
C.J. 13	YA 42544	September 2, 1986
C.J. 14	YA 42545	September 2, 1986
C.J. 15	YA 42546	September 2, 1986
C.J. 16	YA 42547	September 2, 1986
C.J. 17	YA 42548	September 2, 1986
C.J. 18	YA 42549	September 2, 1986
C.J. 19	YA 42550	September 2, 1986
C.J. 20	YA 42551	September 2, 1986
C.J. 21	YA 42552	September 2, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
C.J. 22	YA 42553	September 2, 1986
C.J. 23	YA 42554	September 2, 1986
C.J. 24	YA 42555	September 2, 1986
C.J. 25	YA 42556	September 2, 1986
C.J. 26	YA 42557	September 2, 1986
C.J. 27	YA 42558	September 2, 1986
C.J. 28	YA 42559	September 2, 1986
C.J. 29	YA 42560	September 2, 1986
C.J. 30	YA 42561	September 2, 1986
C.J. 31	YA 42562	September 2, 1986
C.J. 32	YA 42563	September 2, 1986
C.J. 33	YA 42564	September 2, 1986
C.J. 34	YA 42565	September 2, 1986
C.J. 35	YA 42566	September 2, 1986
C.J. 36	YA 42567	September 2, 1986
C.J. 37	YA 42568	September 2, 1986
C.J. 38	YA 42569	September 2, 1986
C.J. 39	YA 42570	September 2, 1986
C.J. 40	YA 42571	September 2, 1986
C.J. 41	YA 42572	September 2, 1986
C.J. 42	YA 42573	September 2, 1986
C.J. 43	YA 42574	September 2, 1986
C.J. 44	YA 42575	September 2, 1986
C.J. 45	YA 42576	September 2, 1986
C.J. 46	YA 42577	September 2, 1986
C.J. 47	YA 42578	September 2, 1986
C.J. 48	YA 42579	September 2, 1986
C.J. 49	YA 42580	September 2, 1986
C.J. 50	YA 42581	September 2, 1986
C.J. 51	YA 42582	September 2, 1986
C.J. 52	YA 42583	September 2, 1986
C.J. 53	YA 42584	September 2, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
C.J. 54	YA 42585	September 2, 1986
C.J. 55	YA 42586	September 2, 1986
C.J. 56	YA 42587	September 2, 1986
C.J. 57	YA 42588	September 2, 1986
C.J. 58	YA 42589	September 2, 1986
C.J. 59	YA 42590	September 2, 1986
C.J. 60	YA 42591	September 2, 1986
C.J. 61	YA 42592	September 2, 1986
C.J. 62	YA 42593	September 2, 1986
C.J. 63	YA 42594	September 2, 1986
C.J. 64	YA 42595	September 2, 1986
C.J. 65	YA 42596	September 2, 1986
C.J. 66	YA 42597	September 2, 1986
C.J. 67	YA 42598	September 2, 1986
C.J. 68	YA 42599	September 2, 1986
C.J. 69	YA 42600	September 2, 1986
C.J. 70	YA 42601	September 2, 1986
C.J. 71	YA 42602	September 2, 1986
C.J. 72	YA 42603	September 2, 1986
C.J. 73	YA 42604	September 2, 1986
C.J. 74	YA 42605	September 2, 1986
C.J. 75	YA 42606	September 2, 1986
C.J. 76	YA 42607	September 2, 1986
C.J. 77	YA 42608	September 2, 1986
C.J. 78	YA 42609	September 2, 1986
C.J. 79	YA 42610	September 2, 1986
C.J. 80	YA 42611	September 2, 1986
C.J. 81	YA 42612	September 2, 1986
C.J. 82	YA 42613	September 2, 1986
C.J. 83	YA 42614	September 2, 1986
C.J. 84	YA 42615	September 2, 1986
C.J. 85	YA 42616	September 2, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
C.J. 86	YA 42617	September 2, 1986
C.J. 87	YA 42618	September 2, 1986
C.J. 88	YA 42619	September 2, 1986
C.J. 89	YA 42620	September 2, 1986
C.J. 90	YA 42621	September 2, 1986
C.J. 91	YA 42622	September 2, 1986
C.J. 92	YA 42623	September 2, 1986
C.J. 93	YA 42624	September 2, 1986
C.J. 94	YA 42625	September 2, 1986
C.J. 95	YA 42626	September 2, 1986
C.J. 96	YA 42627	September 2, 1986
C.J. 97	YA 42628	September 2, 1986
C.J. 98	YA 42629	September 2, 1986
C.J. 99	YA 42630	September 2, 1986
C.J. 100	YA 42631	September 2, 1986
C.J. 101	YA 42632	September 2, 1986
C.J. 102	YA 42633	September 2, 1986
C.J. 103	YA 42634	September 2, 1986
C.J. 104	YA 42635	September 2, 1986
C.J. 105	YA 42636	September 2, 1986
C.J. 106	YA 42637	September 2, 1986
C.J. 107	YA 42638	September 2, 1986
C.J. 108	YA 42639	September 2, 1986
C.J. 109	YA 42640	September 2, 1986
C.J. 110	YA 42641	September 2, 1986
C.J. 111	YA 42642	September 2, 1986
C.J. 112	YA 42643	September 2, 1986
C.J. 113	YA 42644	September 2, 1986
C.J. 114	YA 42645	September 2, 1986
C.J. 115	YA 42646	September 2, 1986
C.J. 116	YA 42647	September 2, 1986
C.J. 117	YA 42648	September 2, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
C.J. 118	YA 42649	September 2, 1986
C.J. 119	YA 42650	September 2, 1986
C.J. 120	YA 42651	September 2, 1986
C.J. 121	YA 42652	September 2, 1986
C.J. 122	YA 42653	September 2, 1986
C.J. 123	YA 42654	September 2, 1986
C.J. 124	YA 42655	September 2, 1986
C.J. 125	YA 42656	September 2, 1986
C.J. 126	YA 42657	September 2, 1986
C.J. 127	YA 42658	September 2, 1986
C.J. 128	YA 42659	September 2, 1986
C.J. 129	YA 42660	September 2, 1986
C.J. 130	YA 42661	September 2, 1986
C.J. 131	YA 42662	September 2, 1986
C.J. 132	YA 42663	September 2, 1986
C.J. 133	YA 42664	September 2, 1986
C.J. 134	YA 42665	September 2, 1986
C.J. 135	YA 42666	September 2, 1986
C.J. 136	YA 42667	September 2, 1986
C.J. 137	YA 42668	September 2, 1986
C.J. 138	YA 42669	September 2, 1986
C.J. 139	YA 42670	September 2, 1986
C.J. 140	YA 42671	September 2, 1986
C.J. 141	YA 42672	September 2, 1986
C.J. 142	YA 42673	September 2, 1986
C.J. 143	YA 42674	September 2, 1986
C.J. 144	YA 42675	September 2, 1986
C.J. 145	YA 42676	September 2, 1986
C.J. 146	YA 42677	September 2, 1986
C.J. 147	YA 42678	September 2, 1986
C.J. 148	YA 42679	September 2, 1986
C.J. 149	YA 42680	September 2, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
C.J. 150	YA 42681	September 2, 1986
C.J. 151	YA 42682	September 2, 1986
C.J. 152	YA 42683	September 2, 1986
C.J. 153	YA 42684	September 2, 1986
C.J. 154	YA 42685	September 2, 1986
C.J. 155	YA 42686	September 2, 1986
C.J. 156	YA 42687	September 2, 1986
C.J. 157	YA 42688	September 2, 1986
C.J. 158	YA 42689	September 2, 1986
C.J. 159	YA 42690	September 2, 1986
C.J. 160	YA 42691	September 2, 1986
C.J. 161	YA 42692	September 2, 1986
C.J. 162	YA 42693	September 2, 1986
C.J. 163	YA 42694	September 2, 1986
C.J. 164	YA 42695	September 2, 1986
C.J. 165	YA 42696	September 2, 1986
C.J. 166	YA 42697	September 2, 1986
C.J. 167	YA 42698	September 2, 1986
C.J. 168	YA 42699	September 2, 1986
C.J. 169	YA 42700	September 2, 1986
C.J. 170	YA 42701	September 2, 1986
C.J. 171	YA 42702	September 2, 1986
C.J. 172	YA 42703	September 2, 1986
C.J. 173	YA 42704	September 2, 1986
C.J. 174	YA 42705	September 2, 1986
C.J. 175	YA 42706	September 2, 1986
C.J. 176	YA 42707	September 2, 1986
C.J. 177	YA 42708	September 2, 1986
C.J. 178	YA 42709	September 2, 1986
C.J. 179	YA 42710	September 2, 1986
C.J. 180	YA 42711	September 2, 1986
C.J. 181	YA 42712	September 2, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
C.J. 182	YA 42713	September 2, 1986
C.J. 183	YA 42714	September 2, 1986
C.J. 184	YA 42715	September 2, 1986
C.J. 185	YA 42716	September 2, 1986
C.J. 186	YA 42717	September 2, 1986
C.J. 187	YA 42718	September 2, 1986
C.J. 188	YA 42719	September 2, 1986
C.J. 189	YA 42720	September 2, 1986
C.J. 190	YA 42721	September 2, 1986
C.J. 191	YA 42722	September 2, 1986
C.J. 192	YA 42723	September 2, 1986
C.J. 193	YA 42724	September 2, 1986
C.J. 194	YA 42725	September 2, 1986
C.J. 195	YA 42726	September 2, 1986
C.J. 196	YA 42727	September 2, 1986
C.J. 197	YA 42728	September 2, 1986
C.J. 198	YA 42729	September 2, 1986
C.J. 199	YA 42730	September 2, 1986
C.J. 200	YA 42731	September 2, 1986
DAVE 1	YA 17802	October 1, 1990
DAVE 2	YA 17803	October 1, 1990
DAVE 3	YA 17804	October 1, 1990
DAVE 4	YA 17805	October 1, 1990
DAVE 5	YA 17806	October 1, 1990
DAVE 6	YA 17807	October 1, 1990
DAVE 7	YA 17808	October 1, 1990
DAVE 8	YA 17809	October 1, 1990
DAVE 9	YA 17810	October 1, 1990
DAVE 10	YA 17811	October 1, 1990
DAVE 11	YA 17812	October 1, 1990

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
DAVE 12	YA 17813	October 1, 1990
DAVE 13	YA 17814	October 1, 1990
DAVE 14	YA 17815	October 1, 1990
DAVE 15	YA 17816	October 1, 1990
DAVE 16	YA 17817	October 1, 1990
DAVE 17	YA 17818	October 1, 1990
DAVE 18	YA 17819	October 1, 1990
DAVE 19	YA 17820	October 1, 1990
DAVE 20	YA 17821	October 1, 1990
DAVE 21	YA 17822	October 1, 1990
DAVE 22	YA 17823	October 1, 1990
DAVE 23	YA 17824	October 1, 1990
DAVE 24	YA 17825	October 1, 1990
D.G. 1	YA 14944	October 1, 1990
D.G. 2	YA 14945	October 1, 1990
D.G. 3	YA 14946	October 1, 1990
D.G. 4	YA 14947	October 1, 1990
D.G. 5	YA 14948	October 1, 1990
D.G. 6	YA 14949	October 1, 1990
D.G. 7	YA 14950	October 1, 1990
D.G. 8	YA 14951	October 1, 1990
D.G. 9	YA 14952	October 1, 1990
D.G. 10	YA 14953	October 1, 1990
D.G. 11	YA 14954	October 1, 1990
D.G. 12	YA 14955	October 1, 1990
D.G. 13	YA 14956	October 1, 1990
D.G. 14	YA 14957	October 1, 1990
D.G. 15	YA 14958	October 1, 1990
D.G. 16	YA 14959	October 1, 1990
D.G. 17	YA 14960	October 1, 1990

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
D.G. 18	YA 14961	October 1, 1990
D.G. 19	YA 14962	October 1, 1990
D.G. 20	YA 14963	October 1, 1990
D.G. 21	YA 14964	October 1, 1990
D.G. 22	YA 14965	October 1, 1990
D.G. 23	YA 14966	October 1, 1990
D.G. 24	YA 14967	October 1, 1990
D.G. 25	YA 14968	October 1, 1990
D.G. 26	YA 14969	October 1, 1990
D.G. 27	YA 14970	October 1, 1990
D.G. 28	YA 14971	October 1, 1990
D.G. 29	YA 14972	October 1, 1990
D.G. 30	YA 14973	October 1, 1990
D.G. 31	YA 14974	October 1, 1990
D.G. 32	YA 14975	October 1, 1990
D.G. 33	YA 14976	October 1, 1990
D.G. 34	YA 14977	October 1, 1990
D.G. 35	YA 14978	October 1, 1990
D.G. 36	YA 14979	October 1, 1990
D.G. 37	YA 14980	October 1, 1990
D.G. 38	YA 14981	October 1, 1990
D.G. 39	YA 14982	October 1, 1990
D.G. 40	YA 14983	October 1, 1990
D.G. 41	YA 14984	October 1, 1990
D.G. 42	YA 14985	October 1, 1990
D.G. 43	YA 14986	October 1, 1990
D.G. 44	YA 14987	October 1, 1990
D.G. 45	YA 14988	October 1, 1990
D.G. 46	YA 14989	October 1, 1990
D.G. 47	YA 14990	October 1, 1990
D.G. 48	YA 14991	October 1, 1990
D.G. 49	YA 14992	October 1, 1990

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
D.G. 50	YA 14993	October 1, 1990
D.G. 51	YA 14994	October 1, 1990
D.G. 52	YA 14995	October 1, 1990
D.G. 53	YA 14996	October 1, 1990
D.G. 54	YA 14997	October 1, 1990
D.G. 55	YA 14998	October 1, 1990
D.G. 56	YA 14999	October 1, 1990
JEFF 1	YA 17826	October 1, 1990
JEFF 2	YA 17827	October 1, 1990
JEFF 3	YA 17828	October 1, 1990
JEFF 4	YA 17829	October 1, 1990
JEFF 5	YA 17830	October 1, 1990
JEFF 6	YA 17831	October 1, 1990
JEFF 7	YA 17832	October 1, 1990
JEFF 8	YA 17833	October 1, 1990
JEFF 9	YA 17834	October 1, 1990
JEFF 10	YA 17835	October 1, 1990
JEFF 11	YA 17836	October 1, 1990
JEFF 12	YA 17837	October 1, 1990
JEFF 13	YA 17838	October 1, 1990
JEFF 14	YA 17839	October 1, 1990
JEFF 15	YA 17840	October 1, 1990
JEFF 16	YA 17841	October 1, 1990
JEFF 17	YA 17842	October 1, 1990
JEFF 18	YA 17843	October 1, 1990
JEFF 19	YA 17844	October 1, 1990
JEFF 20	YA 17845	October 1, 1990
JEFF 21	YA 17846	October 1, 1990
JEFF 22	YA 17847	October 1, 1990
JEFF 23	YA 17848	October 1, 1990

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
JEFF 24	YA 17849	October 1, 1990
JEFF 25	YA 17850	October 1, 1990
JEFF 26	YA 17851	October 1, 1990
JEFF 27	YA 17852	October 1, 1990
JEFF 28	YA 17853	October 1, 1990
JEFF 29	YA 17854	October 1, 1990
JEFF 30	YA 17855	October 1, 1990
JEFF 31	YA 17856	October 1, 1990
JEFF 32	YA 17857	October 1, 1990
JEFF 33	YA 17858	October 1, 1990
JEFF 34	YA 17859	October 1, 1990
JEFF 35	YA 17860	October 1, 1990
JEFF 36	YA 17861	October 1, 1990
JEFF 37	YA 17862	October 1, 1990
JEFF 38	YA 17863	October 1, 1990
JEFF 39	YA 17864	October 1, 1990
JEFF 40	YA 17865	October 1, 1990
JEFF 41	YA 17866	October 1, 1990
JEFF 42	YA 17867	October 1, 1990
JEFF 43	YA 17868	October 1, 1990
JEFF 44	YA 17869	October 1, 1990
JEFF 45	YA 17870	October 1, 1990
JEFF 46	YA 17871	October 1, 1990
JEFF 47	YA 17872	October 1, 1990
JEFF 48	YA 17873	October 1, 1990
JEFF 49	YA 17874	October 1, 1990
JEFF 50	YA 17875	October 1, 1990
JEFF 51	YA 17876	October 1, 1990
JEFF 52	YA 17877	October 1, 1990
JEFF 53	YA 17878	October 1, 1990
JEFF 54	YA 17879	October 1, 1990
JEFF 55	YA 17880	October 1, 1990

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
JEFF 56	YA 17881	October 1, 1990
JEFF 57	YA 30120	October 1, 1990
JEFF 58	YA 30121	October 1, 1990
JEFF 59	YA 30122	October 1, 1990
JEFF 60	YA 30123	October 1, 1990
JEFF 61	YA 30124	October 1, 1990
JEFF 62	YA 30125	October 1, 1990
JEFF 63	YA 30126	October 1, 1990
JEFF 64	YA 30127	October 1, 1990
JEFF 65	YA 17882	October 1, 1990
JEFF 66	YA 17883	October 1, 1990
JEFF 67	YA 17884	October 1, 1990
JEFF 68	YA 17885	October 1, 1990
JEFF 69	YA 17886	October 1, 1990
JEFF 70	YA 17887	October 1, 1990
JEFF 71	YA 17888	October 1, 1990
JEFF 72	YA 17889	October 1, 1990
JEFF 73	YA 17890	October 1, 1990
JEFF 74	YA 17891	October 1, 1990
JEFF 75	YA 17892	October 1, 1990
JEFF 76	YA 17893	October 1, 1990
JEFF 77	YA 17894	October 1, 1990
JEFF 78	YA 17895	October 1, 1990
JEFF 79	YA 17896	October 1, 1990
JEFF 80	YA 17897	October 1, 1990
JEFF 81	YA 17898	October 1, 1990
JEFF 82	YA 17899	October 1, 1990
JEFF 83	YA 17900	October 1, 1990
JEFF 84	YA 17901	October 1, 1990
JEFF 85	YA 17902	October 1, 1990
JEFF 86	YA 17903	October 1, 1990
JEFF 87	YA 17904	October 1, 1990

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
JEFF 88	YA 17905	October 1, 1990
JEFF 89	YA 17906	October 1, 1990
JEFF 90	YA 17907	October 1, 1990
JEFF 91	YA 17908	October 1, 1990
JEFF 92	YA 17909	October 1, 1990
JEFF 93	YA 17910	October 1, 1990
JEFF 94	YA 17911	October 1, 1990
JEFF 95	YA 17912	October 1, 1990
JEFF 96	YA 17913	October 1, 1990
JEFF 97	YA 17914	October 1, 1990
JEFF 98	YA 17915	October 1, 1990
JEFF 99	YA 17916	October 1, 1990
JEFF 100	YA 17917	October 1, 1990
JEFF 101	YA 17918	October 1, 1990
JEFF 102	YA 17919	October 1, 1990
JEFF 103	YA 17920	October 1, 1990
JEFF 104	YA 17921	October 1, 1990
JEFF 105	YA 17922	October 1, 1990
JEFF 106	YA 17923	October 1, 1990
JEFF 107	YA 17924	October 1, 1990
JEFF 108	YA 17925	October 1, 1990
JEFF 109	YA 17926	October 1, 1990
JEFF 110	YA 17927	October 1, 1990
JEFF 111	YA 17928	October 1, 1990
JEFF 112	YA 17929	October 1, 1990
MAR 1	YA 14896	October 1, 1990
MAR 2	YA 14897	October 1, 1990
MAR 3	YA 14898	October 1, 1990
MAR 4	YA 14899	October 1, 1990
MAR 5	YA 14900	October 1, 1990

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
MAR 6	YA 14901	October 1, 1990
MAR 7	YA 14902	October 1, 1990
MAR 8	YA 14903	October 1, 1990
MAR 9	YA 14904	October 1, 1990
MAR 10	YA 14905	October 1, 1990
MAR 11	YA 14906	October 1, 1990
MAR 12	YA 14907	October 1, 1990
MAR 13	YA 14908	October 1, 1990
MAR 14	YA 14909	October 1, 1990
MAR 15	YA 14910	October 1, 1990
MAR 16	YA 14911	October 1, 1990
MAR 17	YA 14912	October 1, 1990
MAR 18	YA 14913	October 1, 1990
MAR 19	YA 14914	October 1, 1990
MAR 20	YA 14915	October 1, 1990
MAR 21	YA 14916	October 1, 1990
MAR 22	YA 14917	October 1, 1990
MAR 23	YA 14918	October 1, 1990
MAR 24	YA 14919	October 1, 1990
MAR 25	YA 17104	October 5, 1990
MAR 26	YA 17105	October 5, 1990
MAR 27	YA 17106	October 5, 1990
MAR 28	YA 17107	October 5, 1990
MAR 29	YA 17108	October 5, 1990
MAR 30	YA 17109	October 5, 1990
MOLE 1	YA 41643	October 1, 1986
MOLE 2	YA 41644	October 1, 1986
MOLE 3	YA 41645	October 1, 1986
MOLE 4	YA 41646	October 1, 1986
MOLE 5	YA 41647	October 1, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
MOLE 6	YA 41648	October 1, 1986
MOLE 7	YA 41649	October 1, 1986
MOLE 8	YA 41650	October 1, 1986
MOLE 9	YA 41651	October 1, 1986
MOLE 10	YA 41652	October 1, 1986
MOLE 11	YA 41653	October 1, 1986
MOLE 14	YA 41654	October 1, 1986
MOLE 16	YA 41655	October 1, 1986
MOLE 17	YA 43112	October 1, 1986
MOLE 18	YA 43113	October 1, 1986
R.D. 1	YA 1393	October 1, 1990
R.D. 2	YA 1394	October 1, 1990
R.D. 3	YA 1395	October 1, 1990
R.D. 4	YA 1396	October 1, 1990
R.D. 5	YA 1397	October 1, 1990
R.D. 6	YA 1398	October 1, 1990
R.D. 7	YA 1399	October 1, 1990
R.D. 8	YA 1400	October 1, 1990
R.D. 9	YA 1401	October 1, 1990
R.D. 10	YA 1402	October 1, 1990
R.D. 11	YA 1403	October 1, 1990
R.D. 12	YA 1404	October 1, 1990
R.D. 13	YA 1405	October 1, 1990
R.D. 14	YA 1406	October 1, 1990
R.D. 15	YA 1407	October 1, 1990
R.D. 16	YA 1408	October 1, 1990
SMOKY 1	YA 17930	October 1, 1990
SMOKY 2	YA 17931	October 1, 1990
SMOKY 3	YA 17932	October 1, 1990
SMOKY 4	YA 17933	October 1, 1990

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
SMOKY 5	YA 17934	October 1, 1990
SMOKY 6	YA 17935	October 1, 1990
SMOKY 7	YA 17936	October 1, 1990
SMOKY 8	YA 17937	October 1, 1990
SMOKY 9	YA 17938	October 1, 1990
SMOKY 10	YA 17939	October 1, 1990
SMOKY 11	YA 17940	October 1, 1990
SMOKY 12	YA 17941	October 1, 1990
SMOKY 13	YA 17942	October 1, 1990
SMOKY 14	YA 17943	October 1, 1990
SMOKY 15	YA 17944	October 1, 1990
SMOKY 16	YA 17945	October 1, 1990
SMOKY 17	YA 17946	October 1, 1990
SMOKY 18	YA 17947	October 1, 1990
SMOKY 19	YA 17948	October 1, 1990
SMOKY 20	YA 17949	October 1, 1990
SMOKY 21	YA 17950	October 1, 1990
SMOKY 22	YA 17951	October 1, 1990
SMOKY 23	YA 17952	October 1, 1990
SMOKY 24	YA 17953	October 1, 1990
SMOKY 25	YA 17954	October 1, 1990
SMOKY 26	YA 17955	October 1, 1990
SMOKY 27	YA 17956	October 1, 1990
SMOKY 28	YA 17957	October 1, 1990
SMOKY 29	YA 17958	October 1, 1990
SMOKY 30	YA 17959	October 1, 1990
SMOKY 31	YA 17960	October 1, 1990
SMOKY 32	YA 17961	October 1, 1990
SMOKY 33	YA 17962	October 1, 1990
SMOKY 34	YA 17963	October 1, 1990
SMOKY 35	YA 17964	October 1, 1990
SMOKY 36	YA 17965	October 1, 1990

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
SMOKY 37	YA 17966	October 1, 1990
SMOKY 38	YA 17967	October 1, 1990
SMOKY 39	YA 17968	October 1, 1990
SMOKY 40	YA 17969	October 1, 1990
SMOKY 41	YA 17970	October 1, 1990
SMOKY 42	YA 17971	October 1, 1990
SMOKY 43	YA 17972	October 1, 1990
SMOKY 44	YA 30072	October 1, 1990
SMOKY 45	YA 30073	October 1, 1990
SMOKY 46	YA 30074	October 1, 1990
SMOKY 47	YA 30075	October 1, 1990
SMOKY 48	YA 17973	October 1, 1990
SMOKY 49	YA 17974	October 1, 1990
SMOKY 50	YA 17975	October 1, 1990
SMOKY 51	YA 30076	October 1, 1990
SMOKY 52	YA 30077	October 1, 1990
SMOKY 53	YA 30078	October 1, 1990
SMOKY 54	YA 30079	October 1, 1990
SMOKY 55	YA 17976	October 1, 1990
SMOKY 56	YA 17977	October 1, 1990
SMOKY 57	YA 17978	October 1, 1990
SMOKY 58	YA 17979	October 1, 1990
SMOKY 59	YA 17980	October 1, 1990
SMOKY 60	YA 17981	October 1, 1990
SMOKY 61	YA 17982	October 1, 1990
SMOKY 62	YA 30080	October 1, 1990
SMOKY 63	YA 30081	October 1, 1990
SMOKY 64	YA 30082	October 1, 1990
SMOKY 65	YA 30083	October 1, 1990
SMOKY 66	YA 17983	October 1, 1990
SMOKY 67	YA 17984	October 1, 1990
SMOKY 68	YA 17985	October 1, 1990

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
SMOKY 69	YA 17986	October 1, 1990
SMOKY 70	YA 17987	October 1, 1990
SMOKY 71	YA 17988	October 1, 1990
SMOKY 72	YA 17989	October 1, 1990
SMOKY 73	YA 17990	October 1, 1990
SMOKY 74	YA 30084	October 1, 1990
SMOKY 75	YA 30085	October 1, 1990
SMOKY 76	YA 30086	October 1, 1990
SMOKY 77	YA 30087	October 1, 1990
SMOKY 78	YA 17991	October 1, 1990
SMOKY 79	YA 17992	October 1, 1990
SMOKY 80	YA 17993	October 1, 1990
SMOKY 81	YA 17994	October 1, 1990
SMOKY 82	YA 17995	October 1, 1990
WEASEL 1	YA 42760	September 15, 1986
WEASEL 2	YA 42761	September 15, 1986
WEASEL 3	YA 42762	September 15, 1986
WEASEL 4	YA 42763	September 15, 1986
WEASEL 5	YA 42764	September 15, 1986
WEASEL 6	YA 42765	September 15, 1986
WEASEL 7	YA 42766	September 15, 1986
WEASEL 8	YA 42767	September 15, 1986
WEASEL 9	YA 42768	September 15, 1986
WEASEL 10	YA 42769	September 15, 1986
WEASEL 11	YA 42770	September 15, 1986
WEASEL 12	YA 42771	September 15, 1986
WEASEL 13	YA 42772	September 15, 1986
WEASEL 14	YA 42773	September 15, 1986
WEASEL 15	YA 42774	September 15, 1986
WEASEL 16	YA 42775	September 15, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
WEASEL 17	YA 42946	September 17, 1986
WEASEL 18	YA 42947	September 17, 1986
WEASEL 19	YA 42948	September 17, 1986
WEASEL 20	YA 42949	September 17, 1986
WEASEL 21	YA 43439	November 28, 1986
WEASEL 22	YA 43440	November 28, 1986
WEASEL 23	YA 43441	November 28, 1986
WEASEL 24	YA 43442	November 28, 1986
WEASEL 25	YA 42776	September 15, 1986
WEASEL 26	YA 42777	September 15, 1986
WEASEL 27	YA 42778	September 15, 1986
WEASEL 28	YA 42779	September 15, 1986
WEASEL 29	YA 42780	September 15, 1986
WEASEL 30	YA 42781	September 15, 1986
WEASEL 31	YA 42782	September 15, 1986
WEASEL 32	YA 42783	September 15, 1986
WEASEL 33	YA 42954	September 15, 1986
WEASEL 34	YA 42955	September 15, 1986
WEASEL 35	YA 42956	September 15, 1986
WEASEL 36	YA 42957	September 15, 1986
WEASEL 37	YA 42958	September 15, 1986
WEASEL 38	YA 42959	September 15, 1986
WEASEL 39	YA 42960	September 15, 1986
WEASEL 40	YA 42961	September 15, 1986
WEASEL 41	YA 42962	September 15, 1986
WEASEL 42	YA 42963	September 15, 1986
WEASEL 43	YA 42964	September 15, 1986
WEASEL 44	YA 42965	September 15, 1986
WEASEL 45	YA 42966	September 15, 1986
WEASEL 46	YA 42967	September 15, 1986
WEASEL 47	YA 42968	September 15, 1986
WEASEL 48	YA 42969	September 15, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
WEASEL 49	YA 42784	September 15, 1986
WEASEL 50	YA 42785	September 15, 1986
WEASEL 51	YA 42786	September 15, 1986
WEASEL 52	YA 42787	September 15, 1986
WEASEL 53	YA 42788	September 15, 1986
WEASEL 54	YA 42789	September 15, 1986
WEASEL 55	YA 42790	September 15, 1986
WEASEL 56	YA 42791	September 15, 1986
WEASEL 57	YA 42792	September 15, 1986
WEASEL 58	YA 42793	September 15, 1986
WEASEL 59	YA 42794	September 15, 1986
WEASEL 60	YA 42795	September 15, 1986
WEASEL 61	YA 42796	September 15, 1986
WEASEL 62	YA 42797	September 15, 1986
WEASEL 63	YA 42798	September 15, 1986
WEASEL 64	YA 42799	September 15, 1986
WEASEL 65	YA 42800	September 15, 1986
WEASEL 66	YA 42801	September 15, 1986
WEASEL 67	YA 42802	September 15, 1986
WEASEL 68	YA 42803	September 15, 1986
WEASEL 69	YA 42804	September 15, 1986
WEASEL 70	YA 42805	September 15, 1986
WEASEL 71	YA 42806	September 15, 1986
WEASEL 72	YA 42807	September 15, 1986
WEASEL 73	YA 42808	September 15, 1986
WEASEL 74	YA 42809	September 15, 1986
WEASEL 75	YA 42810	September 15, 1986
WEASEL 76	YA 42811	September 15, 1986
WEASEL 77	YA 42812	September 15, 1986
WEASEL 78	YA 42813	September 15, 1986
WEASEL 79	YA 42814	September 15, 1986
WEASEL 80	YA 42815	September 15, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
WEASEL 81	YA 42816	September 15, 1986
WEASEL 82	YA 42817	September 15, 1986
WEASEL 83	YA 42818	September 15, 1986
WEASEL 84	YA 42819	September 15, 1986
WEASEL 85	YA 42820	September 15, 1986
WEASEL 86	YA 42821	September 15, 1986
WEASEL 87	YA 42822	September 15, 1986
WEASEL 88	YA 42823	September 15, 1986
WEASEL 89	YA 42824	September 15, 1986
WEASEL 90	YA 42825	September 15, 1986
WEASEL 91	YA 42826	September 15, 1986
WEASEL 92	YA 42827	September 15, 1986
WEASEL 93	YA 42828	September 15, 1986
WEASEL 94	YA 42829	September 15, 1986
WEASEL 95	YA 42830	September 15, 1986
WEASEL 96	YA 42831	September 15, 1986
WEASEL 97	YA 42832	September 15, 1986
WEASEL 98	YA 42833	September 15, 1986
WEASEL 99	YA 42834	September 15, 1986
WEASEL 100	YA 42835	September 15, 1986
WEASEL 101	YA 42836	September 15, 1986
WEASEL 102	YA 42837	September 15, 1986
WEASEL 103	YA 42838	September 15, 1986
WEASEL 104	YA 42839	September 15, 1986
WEASEL 105	YA 42840	September 15, 1986
WEASEL 106	YA 42841	September 15, 1986
WEASEL 107	YA 42842	September 15, 1986
WEASEL 108	YA 42843	September 15, 1986
WEASEL 109	YA 42844	September 15, 1986
WEASEL 110	YA 42845	September 15, 1986
WEASEL 111	YA 42846	September 15, 1986
WEASEL 112	YA 42847	September 15, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
WEASEL 113	YA 42848	September 15, 1986
WEASEL 114	YA 42849	September 15, 1986
WEASEL 115	YA 42850	September 15, 1986
WEASEL 116	YA 42851	September 15, 1986
WEASEL 117	YA 42852	September 15, 1986
WEASEL 118	YA 42853	September 15, 1986
WEASEL 119	YA 42854	September 15, 1986
WEASEL 120	YA 42855	September 15, 1986
WEASEL 121	YA 42856	September 15, 1986
WEASEL 122	YA 42857	September 15, 1986
WEASEL 123	YA 42858	September 15, 1986
WEASEL 124	YA 42859	September 15, 1986
WEASEL 125	YA 42860	September 15, 1986
WEASEL 126	YA 42861	September 15, 1986
WEASEL 127	YA 42862	September 15, 1986
WEASEL 128	YA 42863	September 15, 1986
WEASEL 129	YA 42864	September 15, 1986
WEASEL 130	YA 42865	September 15, 1986
WEASEL 131	YA 42866	September 15, 1986
WEASEL 132	YA 42867	September 15, 1986
WEASEL 133	YA 42868	September 15, 1986
WEASEL 134	YA 42869	September 15, 1986
WEASEL 135	YA 42870	September 15, 1986
WEASEL 136	YA 42871	September 15, 1986
WEASEL 137	YA 42872	September 15, 1986
WEASEL 138	YA 42873	September 15, 1986
WEASEL 139	YA 42874	September 15, 1986
WEASEL 140	YA 42875	September 15, 1986
WEASEL 141	YA 42876	September 15, 1986
WEASEL 142	YA 42877	September 15, 1986
WEASEL 143	YA 42878	September 15, 1986
WEASEL 144	YA 42879	September 15, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
WEASEL 145	YA 42880	September 15, 1986
WEASEL 146	YA 42881	September 15, 1986
WEASEL 147	YA 42882	September 15, 1986
WEASEL 148	YA 42883	September 15, 1986
WEASEL 149	YA 42884	September 15, 1986
WEASEL 150	YA 42885	September 15, 1986
WEASEL 151	YA 42886	September 15, 1986
WEASEL 152	YA 42887	September 15, 1986
WEASEL 153	YA 42888	September 15, 1986
WEASEL 154	YA 42889	September 15, 1986
WEASEL 155	YA 42890	September 15, 1986
WEASEL 156	YA 42891	September 15, 1986
WEASEL 157	YA 42892	September 15, 1986
WEASEL 158	YA 42893	September 15, 1986
WEASEL 159	YA 42894	September 15, 1986
WEASEL 160	YA 42895	September 15, 1986
WEASEL 161	YA 42896	September 15, 1986
WEASEL 162	YA 42897	September 15, 1986
WEASEL 163	YA 42898	September 15, 1986
WEASEL 164	YA 42899	September 15, 1986
WEASEL 165	YA 42900	September 15, 1986
WEASEL 166	YA 42901	September 15, 1986
WEASEL 167	YA 42902	September 15, 1986
WEASEL 168	YA 42903	September 15, 1986
WEASEL 169	YA 42904	September 15, 1986
WEASEL 170	YA 42905	September 15, 1986
WEASEL 171	YA 42906	September 15, 1986
WEASEL 172	YA 42907	September 15, 1986
WEASEL 173	YA 42908	September 15, 1986
WEASEL 174	YA 42909	September 15, 1986
WEASEL 175	YA 42910	September 15, 1986
WEASEL 176	YA 42911	September 15, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
WEASEL 177	YA 42912	September 15, 1986
WEASEL 178	YA 42913	September 15, 1986
WEASEL 179	YA 42914	September 15, 1986
WEASEL 180	YA 42915	September 15, 1986
WEASEL 181	YA 42916	September 15, 1986
WEASEL 182	YA 42917	September 15, 1986
WEASEL 183	YA 42918	September 15, 1986
WEASEL 184	YA 42919	September 15, 1986
WEASEL 185	YA 42920	September 15, 1986
WEASEL 186	YA 42921	September 15, 1986
WEASEL 187	YA 42922	September 15, 1986
WEASEL 188	YA 42923	September 15, 1986
WEASEL 189	YA 42924	September 15, 1986
WEASEL 190	YA 42925	September 15, 1986
WEASEL 191	YA 42926	September 15, 1986
WEASEL 192	YA 42927	September 15, 1986
WEASEL 193	YA 42928	September 15, 1986
WEASEL 194	YA 42929	September 15, 1986
WEASEL 195	YA 42930	September 15, 1986
WEASEL 196	YA 42931	September 15, 1986
WEASEL 197	YA 42932	September 15, 1986
WEASEL 198	YA 42933	September 15, 1986
WEASEL 199	YA 42934	September 15, 1986
WEASEL 200	YA 42935	September 15, 1986
WEASEL 201	YA 42936	September 15, 1986
WEASEL 202	YA 42937	September 15, 1986
WEASEL 203	YA 42938	September 15, 1986
WEASEL 204	YA 42939	September 15, 1986
WEASEL 205	YA 42940	September 15, 1986
WEASEL 206	YA 42941	September 15, 1986
WEASEL 207	YA 42942	September 15, 1986
WEASEL 208	YA 42943	September 15, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
WEASEL 209	YA 42944	September 15, 1986
WEASEL 210	YA 42945	September 15, 1986

DUBLIN GULCH CLAIMS

FRACTIONAL CLAIMS, GRANT NUMBERS AND EXPIRY DATES

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
ALEC 61F	YA 42987	October 1, 1986
ALEC 62F	YA 42988	October 1, 1986
ALEC 63F	YA 42989	October 1, 1986
ALEC 64F	YA 42990	October 1, 1986
ALEC 65F	YA 42991	October 1, 1986
ALEC 66F	YA 42992	October 1, 1986
ALEC 67F	YA 42993	October 1, 1986
ALEC 68F	YA 42994	October 1, 1986
ALEC 69F	YA 42995	October 1, 1986
ALEC 70F	YA 42996	October 1, 1986
ALEC 71F	YA 42997	October 1, 1986
ALEC 72F	YA 42998	October 1, 1986
ALEC 73F	YA 42999	October 1, 1986
ALEC 74F	YA 43000	October 1, 1986
ALEC 75F	YA 43001	October 1, 1986
ALEC 76F	YA 43002	October 1, 1986
BOB 74F	YA 43003	October 1, 1986
BOB 75F	YA 43004	October 1, 1986
BOB 76F	YA 43005	October 1, 1986
BOB 77F	YA 43006	October 1, 1986
BOB 78F	YA 43007	October 1, 1986
BOB 79F	YA 43008	October 1, 1986
BOB 80F	YA 43009	October 1, 1986
BOB 81F	YA 43010	October 1, 1986
BOB 82F	YA 43011	October 1, 1986
BOB 83F	YA 43012	October 1, 1986
BOB 84F	YA 43013	October 1, 1986
BOB 85F	YA 43014	October 1, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
BOB 86F	YA 43014	October 1, 1986
DAVE 25F	YA 42970	September 29, 1986
DAVE 26F	YA 42971	September 29, 1986
DAVE 27F	YA 42972	September 29, 1986
DAVE 28F	YA 42973	September 29, 1986
DAVE 29F	YA 42974	September 29, 1986
DAVE 30F	YA 42975	September 29, 1986
DAVE 31F	YA 43015	October 1, 1986
DAVE 32F	YA 43016	October 1, 1986
DAVE 33F	YA 43017	October 1, 1986
DAVE 34F	YA 43018	October 1, 1986
D.G. 57F	YA 43019	October 1, 1986
D.G. 58F	YA 43020	October 1, 1986
D.G. 59F	YA 43021	October 1, 1986
D.G. 60F	YA 43022	October 1, 1986
D.G. 61F	YA 43023	October 1, 1986
D.G. 62F	YA 43024	October 1, 1986
D.G. 63F	YA 43025	October 1, 1986
D.G. 64F	YA 43026	October 1, 1986
D.G. 65F	YA 43027	October 1, 1986
D.G. 66F	YA 43028	October 1, 1986
D.G. 67F	YA 43029	October 1, 1986
D.G. 68F	YA 43030	October 1, 1986
D.G. 69F	YA 43031	October 1, 1986
D.G. 70F	YA 43032	October 1, 1986
D.G. 71F	YA 43033	October 1, 1986
D.G. 72F	YA 43034	October 1, 1986
D.G. 73F	YA 43035	October 1, 1986
D.G. 74F	YA 43036	October 1, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
D.G. 75F	YA 43037	October 1, 1986
D.G. 76F	YA 43038	October 1, 1986
D.G. 77F	YA 43039	October 1, 1986
D.G. 78F	YA 43040	October 1, 1986
D.G. 79F	YA 43041	October 1, 1986
D.G. 80F	YA 43042	October 1, 1986
D.G. 81F	YA 43043	October 1, 1986
D.G. 82F	YA 43044	October 1, 1986
D.G. 83F	YA 43045	October 1, 1986
D.G. 85F	YA 43046	October 1, 1986
D.G. 86F	YA 43047	October 1, 1986
D.G. 87F	YA 43048	October 1, 1986
D.G. 88F	YA 43049	October 1, 1986
D.G. 89F	YA 43050	October 1, 1986
D.G. 90F	YA 43051	October 1, 1986
D.G. 91F	YA 43052	October 1, 1986
D.G. 92F	YA 43053	October 1, 1986
D.G. 93F	YA 43054	October 1, 1986
D.G. 94F	YA 43055	October 1, 1986
D.G. 95F	YA 43056	October 1, 1986
D.G. 96F	YA 43057	October 1, 1986
D.G. 97F	YA 43058	October 1, 1986
D.G. 98F	YA 43059	October 1, 1986
D.G. 99F	YA 43060	October 1, 1986
D.G. 100F	YA 43061	October 1, 1986
D.G. 101F	YA 43062	October 1, 1986
D.G. 102F	YA 43063	October 1, 1986
D.G. 103F	YA 43064	October 1, 1986
D.G. 104F	YA 43065	October 1, 1986
D.G. 105F	YA 43066	October 1, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
JEFF 113F	YA 42976	September 29, 1986
JEFF 114F	YA 42977	September 29, 1986
JEFF 115F	YA 42978	September 29, 1986
JEFF 116F	YA 42979	September 29, 1986
JEFF 117F	YA 42980	September 29, 1986
JEFF 118F	YA 42981	September 29, 1986
JEFF 119F	YA 42982	September 29, 1986
JEFF 120F	YA 42983	September 29, 1986
JEFF 121F	YA 43067	October 1, 1986
JEFF 122F	YA 43068	October 1, 1986
JEFF 123F	YA 43069	October 1, 1986
JEFF 124F	YA 43070	October 1, 1986
JEFF 125F	YA 43071	October 1, 1986
JEFF 126F	YA 43072	October 1, 1986
JEFF 127F	YA 43073	October 1, 1986
JEFF 128F	YA 43074	October 1, 1986
JEFF 129F	YA 43075	October 1, 1986
JEFF 130F	YA 43076	October 1, 1986
JEFF 131F	YA 43077	October 1, 1986
JEFF 132F	YA 43078	October 1, 1986
JEFF 133F	YA 43079	October 1, 1986
JEFF 134F	YA 43080	October 1, 1986
JEFF 135F	YA 43081	October 1, 1986
JEFF 137F	YA 43082	October 1, 1986
JEFF 138F	YA 43083	October 1, 1986
JEFF 139F	YA 43084	October 1, 1986
JEFF 140F	YA 43085	October 1, 1986
JEFF 141F	YA 43086	October 1, 1986
JEFF 142F	YA 43087	October 1, 1986
JEFF 143F	YA 43088	October 1, 1986
JEFF 144F	YA 43089	October 1, 1986
JEFF 145F	YA 43090	October 1, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
JEFF 146F	YA 43091	October 1, 1986
JEFF 147F	YA 43092	October 1, 1986
JEFF 148F	YA 43093	October 1, 1986
JEFF 149F	YA 43094	October 1, 1986
JEFF 150F	YA 43095	October 1, 1986
JEFF 151F	YA 43096	October 1, 1986
JEFF 152F	YA 43097	October 1, 1986
JEFF 153F	YA 43098	October 1, 1986
JEFF 154F	YA 43099	October 1, 1986
MAR 31F	YA 42984	September 29, 1986
MAR 32F	YA 43100	October 1, 1986
MAR 33F	YA 43101	October 1, 1986
MAR 34F	YA 43102	October 1, 1986
MAR 35F	YA 43103	October 1, 1986
MAR 36F	YA 43104	October 1, 1986
MAR 37F	YA 43105	October 1, 1986
MAR 38F	YA 43106	October 1, 1986
MAR 39F	YA 43107	October 1, 1986
MAR 40F	YA 43108	October 1, 1986
MAR 41F	YA 43109	October 1, 1986
MAR 42F	YA 43110	October 1, 1986
MAR 43F	YA 43111	October 1, 1986
MOLE 19F	YA 43114	October 1, 1986
MOLE 20F	YA 43115	October 1, 1986
MOLE 21F	YA 43116	October 1, 1986
MOLE 22F	YA 43117	October 1, 1986
MOLE 23F	YA 43118	October 1, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
MOLE 24F	YA 43119	October 1, 1986
SMOKY 83F	YA 43120	October 1, 1986
SMOKY 84F	YA 43121	October 1, 1986
SMOKY 85F	YA 43122	October 1, 1986
SMOKY 86F	YA 43123	October 1, 1986
SMOKY 87F	YA 43124	October 1, 1986
SMOKY 88F	YA 43125	October 1, 1986
SMOKY 89F	YA 43126	October 1, 1986
SMOKY 90F	YA 43127	October 1, 1986
SMOKY 91F	YA 43128	October 1, 1986
SMOKY 92F	YA 43129	October 1, 1986
SMOKY 93F	YA 43130	October 1, 1986
SMOKY 94F	YA 43131	October 1, 1986
SMOKY 95F	YA 43132	October 1, 1986
SMOKY 96F	YA 43133	October 1, 1986
SMOKY 97F	YA 43134	October 1, 1986
SMOKY 98F	YA 43135	October 1, 1986
SMOKY 99F	YA 43136	October 1, 1986
SMOKY 100F	YA 43137	October 1, 1986
SMOKY 101F	YA 43138	October 1, 1986
SMOKY 102F	YA 43139	October 1, 1986
SMOKY 103F	YA 43140	October 1, 1986
SMOKY 104F	YA 43141	October 1, 1986
SMOKY 105F	YA 43142	October 1, 1986
SMOKY 106F	YA 43143	October 1, 1986
SMOKY 107F	YA 43144	October 1, 1986
SMOKY 108F	YA 43145	October 1, 1986
SMOKY 109F	YA 43146	October 1, 1986
SMOKY 110F	YA 43147	October 1, 1986
SMOKY 111F	YA 43148	October 1, 1986
SMOKY 112F	YA 43149	October 1, 1986

CLAIM NAME	GRANT NUMBER	EXPIRY DATE
SMOKY 113	YA 43150	October 1, 1986
SMOKY 114	YA 43151	October 1, 1986
MARY 1F	YA 63876	August 11, 1982
MARY 2F	YA 63877	August 11, 1982
MARY 3F	YA 63878	August 11, 1982
MARY 4F	YA 63879	August 11, 1982
MARY 5F	YA 63880	August 11, 1982
MARY 6F	YA 63881	August 11, 1982
MARY 7F	YA 63882	August 11, 1982
MARY 8F	YA 63883	August 11, 1982
FIJI 1F	YA 63884	August 11, 1982
FIJI 2F	YA 63885	August 11, 1982
FIJI 3F	YA 63886	August 11, 1982
FIJI 4F	YA 63887	August 11, 1982
FIJI 5F	YA 63888	August 11, 1982
FIJI 6F	YA 63889	August 11, 1982

APPENDIX 'B'

EXCERPT FROM

"Summary of the 1980 Exploration Program, Dublin Gulch, Gold-Quartz Vein Fissure System"

(S.C. Bartlett, 1981)

SUMMARY OF THE 1980 FIELD WORK GOLD-QUARTZ FISSURE SYSTEM

The 1980 field program was intended to test a zone parallel to, and within 350 metres of the Dublin Gulch stock in an area north of the stock, east of Suttle Gulch and west of Carscallen Gulch. A series of long parallel trenches were proposed to cut across the entire width of the zone at widely spaced intervals along the trend of the zone. The program was designed to test the known showings in the area and to further explore undeveloped areas within the zone. D-7G Bulldozer trenching was conducted in conjunction with geological mapping and sampling.

Exploration was first conducted in the Creek Zone West Fissure situated in Dublin Gulch at the mouth of Suttle Pup. The Creek Zone hosts a number of pyrite-arsenopyrite showings which occur sporadically over 175 metres in the south fork of Dublin Creek. There are two major showings in the Creek Zone. In the easternmost showing sulphide mineralization consists of massive pyrite and arsenopyrite with minor sphalerite and chalcopyrite. Sulphide lodes occur within 15 metres of a gouge zone extending over a length of 45 metres and a width of up to 7 metres. Assays from six grab samples of these lodes range from 0.126 to 0.474 oz/ton Au and 1.00 to 5.88 oz/ton Ag.

The second significant occurrence lies 125 metres to the west and consists of a narrow gouge zone which contains coarse euhedral pyrite cubes cemented by fine grained arsenopyrite. The zone is 1 metre wide and cuts through sulphide-rich, grey foliated quartzite. Six grab samples collected from this zone gave gold values of 0.094 to 0.156 ounces per ton. A total of 119 samples were collected from Creek Zone West and assayed for gold and silver and some for antimony, lead, tin and copper. Three specimens were submitted for 20 element semi-quantitative spectrographic analysis; no significant quantities of other elements were detected. The Creek Zone West is the largest structure discovered to date east of Haggart Creek. There is high potential for massive sulphide lodes in this Creek Zone West area and further exploration is required.

D7G bulldozer trenching began in mid-June on the ridge between Olive Gulch and Stewart Gulch where numerous quartz-arsenopyrite-scorodite showings were known. Trenches were cut to provide a continuous exposure across the zone from the granodiorite contact to the access road south of Dublin Creek. The first trenches were sampled along their entire lengths to test for the possibility of developing a bulk tonnage, low grade gold deposit. No significant gold values were obtained in the wall rock and the thrust of the exploration program was then oriented toward locating and sampling individual veins.

A number of veins were uncovered in the trenches and upon mapping and sampling the exposures it was realized that widely spaced trenches along the trend of the zone would not properly assess the economic potential of the area. A detailed trenching program to test the effectiveness of widely spaced bulldozer trenches was conducted in the area referred to as the Old Stewart and Catto group. This area is well mineralized, hosts three major underground developments and at least two smaller adits. When exploration of the area was complete 2,750 metres of bulldozer trenching in 30 trenches excavated 28,806 cubic yards of bedrock. A total of 194 samples were collected from these trenches. Of these 89 were assayed for gold and silver and some for lead, zinc and antimony. The remaining 105 were analysed geochemically for gold.

In areas of deep bedrock weathering a deep trenching program using a John Deere 690 excavator was conducted. The program was initiated on July 28, and continued until August 12, 1980. During this period 28 trenches were excavated for a total volume of 4,326 cubic yards. Depths of 6 to 7 metres below surface were common and a depth in excess of 10 metres was obtained by staging. A total of 252 samples were collected and assayed for gold and silver and some for lead, zinc and antimony. To complete exploration in this area 62 samples were collected from the de-iced section of the Aurum adit on the Victoria vein. All samples were assayed for gold and silver.

Twelve significant veins were discovered or examined in detail in the Stewart and Catto area. The most detailed work was performed on the Cabin vein which occurs in trenches GTR-4 and GTR-20 as well as in the Beaver Adit. Trenching and sampling indicates 332 tons of vein material averaging 0.479 ounces of gold per ton and 1.71 ounces of silver per ton. These figures represent approximately 160 ounces of gold. Projection of the vein along strike suggests that 200 to 300 ounces of gold could be mined from this vein structure. The Victoria and Aurum No. 2 Veins exposed in trenches GTR-3 and GTR-23 and the Aurum Adit form a strong structure containing 600 to 1500 ounces of gold. Reasonable downdip and strike-length projection of this vein could infer 2000 to 3000 ounces of gold. Calculations based on 27 samples from the Catto Vein of GTR-2 indicate approximately 70 tons averaging 0.885 ounces of gold per ton and 0.56 ounces of silver per ton. This structure contains more than 60 ounces and 100 ounces could easily be inferred. The remaining veins in the area are smaller or undeveloped and require further work to assess their potential. Several of these could probably produce

100 or more ounces of gold for a total of between 1000 and 1500 ounces from this area.

A total of 18 bulldozer trenches were cut on the ridge between Stewart Gulch and Eagle Pup. The 1,054 metres of offset trenches expose a continuous section of bedrock down the crest of the ridge from the Old Blue Lead shaft to the access road south of Dublin Creek. The total volume of material excavated was 13,321 cubic yards. From this area 16 samples were collected. All samples were assayed for gold and silver.

Four significant veins were explored. The Blue Lead Shaft Vein occurs in a shaft on the ridge between Stewart and Eagle Pup 80 metres south of the granodiorite-metasediment contact and to the west of the shaft in trench GTR-30. McLean (1914) reported the vein to be 66 centimetres wide in the 7 metre deep shaft and material in the dump beside the shaft suggests a similar width. Grab samples from the dump material collected in 1979 and 1980 assayed 0.472 ounces per ton gold and 2.17 ounces per ton silver and 0.402 ounces of gold per ton and 1.32 ounces of silver per ton respectively. This is a potentially significant structure and could prove to produce 100 ounces of gold or more. The Blue Vein crops out in trench GTR-3 approximately 70 metres northwest of the Blue Lead shaft. A sample across a width of 50 centimetres assayed 0.662 ounces of gold per ton and 0.64 ounces of silver per ton. The vein has been traced for approximately 10 metres and shows fault terminations in both directions. Trenching beyond the faults in both directions would relocate the vein. The Stewart vein is situated on the lower slope of the ridge toward Stewart Pup. The only exposure is float on a dump near a caved adit which apparently was driven on the vein. Further work is required to outline the vein. The Henderson Vein is located low on the crest of the ridge in trenches GTR-48, GTR-49 and GTR-50. It is the largest vein structure discovered during 1980 and ranges from 20 to 75 centimetres wide. Assays of samples collected from the vein range from 0.316 to 1.744 ounces of gold per ton and 0.52 to 5.51 ounces of silver per ton. An average grade of 0.922 ounces of gold per ton and 1.51 ounces of silver per ton over an average width of 37 centimetres was obtained from 10 samples. The Henderson Vein structure is very significant and could conceivably host in excess of 200 to 300 ounces of gold.

On the north side of the West Potato Hill two quartz-arsenopyrite-scorodite veins were located and trenched. Exploration adits driven on the veins in the past are now caved. At least 1,342 cubic yards of material was moved from 3 trenches over a total length of 208 metres. A total of 46 samples were col-

lected and assayed for gold and silver. Gold assay values from the CB No. 1 Vein ranged from 0.078 to 0.748 ounces of gold per ton and 0.12 ounces of silver per ton. An average grade of 0.122 ounces of gold per ton and 1.55 ounces of silver per ton over an average of 58 centimetres has been calculated from 10 samples. Further work is required to outline the production potential of this vein. The CB No. 2 Vein is considerably smaller and relatively untested. A sample assayed 0.294 ounces of gold per ton and 0.61 ounces of silver per ton over 5 centimetres.

The remaining work performed on the gold-quartz system consisted of prospecting and mapping of the few outcrops near the Old Eagle showing and in the vicinity of Suttle and Platinum Gulches. Five samples from near the Old Eagle workings were assayed for gold and silver. Three grab samples from the Eagle Vein assayed between 1.142 and 2.060 ounces of gold per ton and confirmed the presence of a significant vein structure in this area.

CONCLUSIONS AND RECOMMENDATIONS

The 1980 exploration program has outlined one of the few currently known significant precious metal vein systems in the Yukon Territory. The vastness of the system and its current economic implications were also realized. In addition, a successful exploration procedure was developed that would locate and investigate the gold-bearing quartz veins of this unique vein system. To date, deposits containing in the order of 1000 to 1500 ounces of gold have been located and sampled in some detail. The deposits investigated to the present time are generally small but contain high grade material. Individual structures may host up to 500 ounces of gold.

Larger structures in the area, similar to and including the Creek Zone West Fissure, the Peso No. 1 Vein or the REX Vein which host considerably larger ore shoots, could conceivably exist elsewhere within this system. The area covered by the 1980 survey represents not more than five percent of the total area underlain by gold-bearing quartz veins. The probability of developing additional reserves is excellent.

It is now apparent that the economic potential of the system lies in selective mining of 30 to 50 centimetre wide auriferous vein lodes. An aggressive program of continued exploration leading to production from selectively mined deposits

is recommended. The successful development of the system as a series of selectively mined deposits depends on the development of a feasible mining technique.

The feasibility of mining can only be investigated by conducting a prototype operation where various excavation and recovery techniques can be tested. A selective mining and experimental milling program is recommended for the 1981 season and would require a 10 to 20 ton per day pilot plant at Dublin Gulch.

Studies required to develop a pilot mill design have been initiated in the form of metallurgical testing of a bulk sample. Metallurgical test results of the vein material are very encouraging, demonstrating that 90 percent or more of the gold can be recovered by a combination of simple gravity, flotation and cyanidation processes. The cost of such a mill, including crushing, grinding, jigging, flotation and cyanidation units is estimated to cost less than $100,000.00. Rental costs of such equipment would be considerably lower than the purchase price of a mill. See Appendix III.

Surface mining equipment required for selective mining is minimal and includes a bulldozer, an excavator and a method of transporting material to the mill site. A truck, bulldozer-drawn cart or conveyor belt system would be suitable. It is important that the test mining operation be supplemented by an on-going exploration program which will locate and develop additional reserves.

An exploration program similar to the 1980 program should consist of a bulldozer and an excavator conducting detailed trenching. A priority list of development events should begin with delimiting the deposits presently discovered. Deposits which should be developed include the Henderson, Eagle, Blue Lead, Green and Olive veins. Exploration of the area south of Dublin Gulch and east of Haggart Creek should follow. When an adequate amount of mill feed has been developed, trenching should be conducted west of Haggart Creek in Gill Gulch and south of Fifteen Pup. The potential in this area for the discovery of large vein-fissures is excellent.

Continued exploration of the Creek Zone West Fissure is recommended for the 1981 exploration program. This strong structure hosts gold-bearing, massive sulphide lodes. A program of geophysics, possibly an electromagnetic survey or an induced polarization survey should be designed in cooperation with a

consulting geophysicist. The survey should be designed to delineate the structure prior to exploration drilling. Diamond drilling is recommended of the zone outlined by the geophysical survey perhaps initially on the zone located in 1979 and 1980. The drill program should consist of 700 metres of NQ core drilling in a series of holes along the trend of the structure. The drilling should define the geometry of fissure structure and indicate the strength of structure. Ideally the holes will define areas of mineralization but the lack of sulphide intersections in exploratory drill core does not disprove the presence of sulphide lodes within the structure.

A minor amount of diamond drilling is recommended in the Stewart and Catto area to test the down dip continuity of the Victoria and Aurum No. 2 Veins and the Cabin and Catto Veins. This program would require approximately 500 metres of NQ diamond core drilling. Such a program will provide valuable information of the behaviour of the veins in the granodiorite stock beneath the metasediment cover. The continuity or discontinuity of vein structures in the granodiorite is not presently known and could significantly alter the ore reserve potential of the system.

APPENDIX 'C'

Petrographic Report

and

Whole Rock Analysis Data

Vancouver Petrographics Ltd.

JAMES VINNELL, Manager
JOHN G. PAYNE, Ph. D. Geologist

P.O. BOX 39
8887 NASH STREET
FORT LANGLEY, B.C.
VOX 1JO

PHONE (604) 888-1323

November 12, 1981

INV. NO : 3022

Bema Industries Ltd.,
#203-19945 - 56th Ave.,
Langley, B.C.
V3A 3Y2

Dear Sir:

Please find herewith petrographic descriptions for 9 specimens submitted to Vancouver Petrographics after 23 October 1981. I will attempt to answer the questions you posed in your submission, although it is difficult to speculate on the relationship and origin of rocks without field observations.

SPECIMEN #2 shows a well developed phyllic alteration envelope adjacent to a quartz-arsenopyrite vein.

SPECIMEN #3 is similar to #5 and appears to be a porphyritic granite with an "aplitic" or sugary matrix.

SPECIMENS #4, #7, & #9 are very similar and might be described as hornblende - biotite -granodiorite based on K-spar to plagioclase ratio, however plagioclase contents vary from andesine to labradorite and are therefore more appropriately termed quartz-diorite or tonalite.

SPECIMEN #6 is a calc silicate gneiss of probable pyrometasomatic origin. It consists of about 5% relict(?) K-spar, the rest appear to be authegenic minerals.

SPECIMEN #7 appears to be a nonporphyritic variety of granite related to #3 & #5 rather than to the tonalites. The sphene-rich quartz vein need not be related to the granites since the tonalites are themselves quartz rich.

SPECIMEN #9 was probably not dry. Sufficient water was available to form biotite, hornblende and deuteric alteration products such as chlorite, sericite & zoisite although it may have crystallized at temperatures in excess of 700°C , the tonalite solidus

2.....

The prescence of two micas & exotic accessories such as Zircon, scheelite, tourmaline, and low iron opaque contents, are typical of S-type, or continental-derived, granites. The granites and tonalites may be related by a process of late-stage differentiation or they may represent separate melting events. **Sphene** appears to be a primary accessory mineral and is not considered to be of secondary or hydrothermal derivation.

Should you have any further questions, please do not hesitate to call me at 734-9474.

Sincerely,

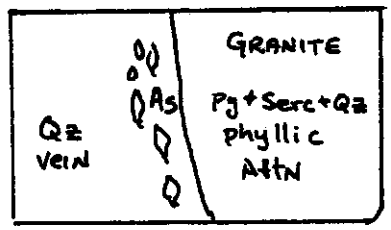
Peter Peto

Peter Peto

SPECIMEN: #2 -80-20-215m

ROCK TYPE: Granite

MODE: Quartz (40%
Plag- pseudomorphs (30%)
Sericite (20%)
Chlorite (3%)
Limonite (5%)
Pyrite (2%)



HANDSPECIMEN: the rock consists of a rusty, highly altered granite consisting of relict grains of quartz & feldspar with secondary pyrite, sericite and limonite adjacent to a milky quartz vein containing 1-3mm arsenopyrite crystals along its margin.

THINSECTION: The quartz vein consists mostly of 1 to 2mm, anhedral quartz grains with smaller (0.1mm) granules occupying some interticies. Anhedral to euhedral crystals of arsenopyrite, 0.1 to 1mm across, usually associated with sericite flakes occurs adjacent to altered granite. The granite consists of medium grained 1-5mm, quartz and sericite pseudomorphs alter K-feldspar, and microcrystalline limonite filling cracks and fractures, or replacing pyrite. Patches of secondary chlorite & sericite 1-2mm across, are also pervaisive.

MINERALOGY:

Quartz occurs largely as anhedral, medium grained crystals.

Plagioclase almost completely altered to sericite, occurs as blocky, anhedral crystals.

Sericite occurs as fine grained 0.01-0.1mm flakes & sheaves replacing feldspar and as interstitial clots associated with chlorite.

Chlorite occurs as colourless to brown microcrystalline aggregates, associated with limonite and sericite, in secondary clots.

Limonite occurs as microcrystalline infillings of fracture and crystal cracks.

Arsenopyrite occurs along the quartz vein salvage.

ALTERATION: the pervaisive development of secondary quartz-pyrite - sericite along the granite vein contact is typical of strong phyllic alteration. There is also a suggestion that chlorite + sericite + limonite may have completely replaced primary biolite in the granite and that most K-feldspar is replaced by sericite.

SPECIMEN: #3 -80-61-95m

ROCK TYPE: Granite porphyry

MODE: quartz phenocrysts (20%)
plag- phenocrysts (10%)
matrix (70%) = 30% K-feldspar, 30% albite, 10% quartz, 1% muscovite.
Traces of biotite, hornblende, carbonate, sphene & chlorite.

HANDSPECIMEN: grey and white, hololeucocratic, massive granite porphyry consisting of 1-2mm microphenocrysts of smokey quartz and white feldspar set in a very fined grained aplitic matrix. Quartz phenocrysts show a weak alignment perpendicular to the core axis.

THINSECTION: the rock shows a porphyritic texture consisting of anhedral blebs of quartz and blocky, anhedral albite phenocrysts (0.05-1.0mm across)set in a very fine grained, allotriomorphic-granular matrix composed of granules of quartz, K-feldspar, with trace amounts of interstitial biotite, hornblende, scheelite and secondary sericite, carbonate chlorite, and pyrite.

MINERALOGY:

Quartz occurs as anhedral microphenocrysts and matrix grains; together comprising some 30% of the rock.

Albite occurs as anhedral microphenocrysts and matrix grains; together comprising some 40% of the rock.

Orthoclase occurs as very fine grained (0.02mm) granules or rare, anhedral clots 1mm across, and comprises 30% of the rock.

Hornblende & biotite are palegreen & brown 0.05mm, interstitial crystals.

Muscovite also occurs as very fine grained, interstitial laths, and along with carbonate grains, of possible secondary origin.

Sphene occurs as anhedral to subhedral find grained (0.1-0.7mm) disseminated crystals, comprising less than 0.5% of the section.

Pyrite, zircon, apatite are accessories.

ALTERATION: alkali-feldspar shows minor alteration to carbonate. Carbonate, sericite and pyrite were probably deuteric alteration products, whereas biotite and hornblende are primary mafics.

SPECIMEN: # 4 -80-3-120.3m

ROCK TYPE: Quartz Diorite (tonalite)

MODE: quartz(30 %)
Plagioclase (40%)
k-feldspar (5-10%)
biotite (7%-10%)
hornblende (3%)

Accessory: rutile, zircon, apatite, magnetite, sphene & clinopyroxene.
Secondary: chlorite, sericite, carbonate & epidote.

HANDSPECIMEN: speckled pale grey and black, massive, medium to coarse grained, quartz diorite: consisting of smokey quartz blebs, biotite flakes and hornblende prisims set in a bluish grey medium grained feldspar matrix with some crystals up to 7mm long.

THINSECTION: the rock shows a massive medium to coarse grained hypidimorphic, inequigranular texture consisting of blocky andesine crystals, poikilitic K feldspar clots, biotite flake and relict hornblende crystal clots and interstitial quartz blebs.

MINERALOGY:

Quartz occurs as 0.05-4mm, anhedral, interstitial crystals.

Plagioclase (An65-An45) occurs as blocky, subhedral, medium grained crystals (1-7mm) showing normal zoning highly calcic cores and albitic margins. Most crystals are unaltered but some show minor carbonate & sericite along cleavages or core regions.

Orthoclase occurs as fine grain, anhedral, interstitial grains (0.1mm) to poikilitic clots 3mm across.

Biotite occurs as 0.5-1mm subhedral flakes containing zircon and apatite inclusions. Some crystals partly altered to chlorite, epidote & rutile.

Hornblende occurs as rare, 7mm crystal aggregates consisting of several, subhedral pleochroic crystals 1mm across & relict, colourless, clinophroxene (diopside) and having extinction angle of 40^{o}. Hornblende is partly altered to carbonate.

ALTERATION: secondary carbonate and sericite partly replace plagioclase; chlorite-epidote partly replace biotite.

SPECIMEN: #5

ROCK TYPE: Granite Porphyry

MODE:		Secondary:	Accessory:
	Quartz (40%)	Carbonate (5%)	**Sphene** (0.5%)
	K-feldspar (30%)	Chlorite (4%)	Apatite (0.4%)
	Albite (15%)	**Muscovite (5%)**	Zircon (0.1%)

HANDSPECIMEN: cream-coloured, leucocratic, massive granite porphyry, similar to specimen #3, consisting of 1-2mm microphenocrysts of white albite and smokey quartz blebs set in a sugary very fine grained aplitic matrix composed of K-spar, muscovite, dark mafic & interstitial quartz grains.

THINSECTION: the rock has a inequigranular to porphyritic texture consisting of about 15% anhedral quartz blebs (3-5mm) set in a fine grained (0.01-0.05mm) allotriomorphic-granular matrix composed of subhedral albite, quartz and K-feldspar grains with interstitial muscovite, chlorite, carbonate and rare accessory **sphene.**

MINERALOGY:

Quartz occurs as medium grained blebs (15%) and matrix grains (25%).

K-feldspar occurs as fine grained, anhedral crystals in matrix partly replaced by sericite.

Albite occurs as fine grained, subhedral, weakly zoned blocky crystals partly replaced by calcite and sericite.

Muscovite occurs as very fine grained interstitial flakes or as replacement of feldspar.

Carbonate occurs as fine grained interstitial grains or irregular patches replacing quartz & feldspar.

Chlorite occurs as microcrystalline sheaves replacing primary mafics (biotite?) and as descrete clots.

Sphene occurs as 1 to 0.1mm anhedral crystals, usually associated with patches of carbonate and an unknown brown accessory of high relief, straight extinction & two cleavages, **possibly rutile.**

ALTERATION: primary mafics, possibly biotite has been altered to chlorite-carbonate. Sericite, carbonate and chlorite may be deuteric alteration products. **Sphene** is probably a primary accessory. Feldspars are partly altered locally to sericite, otherwise the rock is relatively unaltered.

SPECIMEN: #6 "Skarn"

ROCK TYPE: Calc-silicate (Skarn) Gniess

MODE:			
	Diopside (80%)	Feldspar (3%)	Accessory:
	Carbonate (5%)	Quartz (2%)	Scheelite (tr)
	Epidote (5%)	Garnet (2%)	Apatite? (tr)
	Chlorite (2%)	Zoisite (1%)	Biotite? (tr)

HANDSPECIMEN: dark green with white streaks, medium grained, granoblastic texture consisting of diopside, calcite, epidote and red garnet. Minerals are somewhat concentrated into bands imparting a gniessic appearance to the rock.

THIN SECTION: the rock shows a granoblastic texture consisting of 0.2-0.5 mm anhedral grains of diopside with minor amounts of interstitial feldspar & quartz (5%) and epidote or garnet rich bands about 1mm thick. Poikiloblastic garnets, 5 to 7mm across, are elongated parallel to foliation.

MINERALOGY:

Diopside occurs anhedral, equant grains, 0.1-0.5mm across.

Carbonate occurs as interstitial cement, as does quartz, and chlorite comprising less than 10% of the rock.

Epidote occurs as fine grained, 0.1-0.3mm, grains forming mono-mineralic bands about 1mm thick.

Garnet, probably grossular, forms elongate porphyroblasts with diopside inclusions.

Zoisite also occurs rare subhedral porphyroblasts less than 0.3mm across.

Feldspar occurs as find grained relict crystals confined to the interstices of other calc-silicate minerals.

Scheelite occurs as very fine grained (0.05mm) anhedral grains which tend to cluster in layers but occur in accessory amounts in relation to the rest of the rock.

Chlorite occurs as microcrystalline aggregates interstitial to diopside.

SPECIMEN: #7 -80-3-123.6m.

ROCK TYPE: Quartz diorite (tonalite)

MODE:			
	Quartz (25%)	Secondary:	Accessory:
	Plagioclase (55%)	Carbonate(3%)	Sphene (1%)
	K-feldspar (5%)	Chlorite(2%)	Apatite (tr)
	Biotite (1%)		Zircon (tr)
	Hornblende (7-10%)		Tourmaline? (tr)

HANDSPECIMEN: the rock is grey speckled black, medium grained, massive, leucocratic (10-15% mafics) quartz diorite consisting largely of grey plagioclase, smokey quartz blebs, K-feldspar clots, biotite and hornblende and accessory sphene. The core is cut by a smoky quartz veinlet, 5mm thick, with pink salvages 10mm wide consisting of altered feldspar.

THIN SECTION: The section shows a fine to medium grained, 0.1-2mm, hypidiomorphic granular texture consisting of blocky andesine crystals, poikilitic orthoclase, with interstitial quartz blebs, irregular hornblende prisims, biotite flakes and patches (1-6mm)of secondary carbonate replacing hornblende. Carbonate also replaces crystal boundaries of quartz and feldspar. Sphene euhedra occur within quartz veins but are anhedral elsewhere.

MINERALOGY:

Quartz occurs as fine to very fine grained blebs.

Andesine occurs as descrete, weakly zoned, twinned crystals sometimes with saussuritic cores.

K-feldspar (orthoclase) occurs as anhedral, poikilitic clots with inclusions of plagioclase and in places is replaced by carbonate.

Hornblende occurs as weakly pleochroic, anhedral, irregular prisims or grains interstitial to plagioclase. Some crystals are almost completely replaced by carbonate.

Biotite occurs as ragged, fine grained flakes, partly altered to chlorite.

Accessory amounts of sphene, apatite, zircon, tourmaline(?) also occur.

Carbonate is secondary and occurs as void infilling & replacement of hornblende, quartz and feldspar. Small amounts of chlorite occur in voids but mostly as replacement of biotite.

Tourmaline (?) (two grains) occurs as brown, subhedral, fine grained & zoned elongate prisims.

SPECIMEN: #8 -80-53-112.2m

ROCK TYPE: Granite

MODE:		Secondary:	Accessory:
	Quartz (30%)	Carbonate (3%)	Opaque **(Ti-oxide?)**
	Plagioclase (30%)	Chlorite (1%)	Tourmaline(?)
	K-feldspar (35%)	Sericite (2%)	Apatite
	Amphibole (tr)		

HANDSPECIMEN: Pale green, speckled dark green, fine grained, massive, equigranular granite aplite composed of nearly equal amounts of quartz, plagioclase & K-feldspar with trace amounts of relict biotite. Cut by 2mm quartz vein with bleached (K-spar poor) salvage 5mm on either side of the vein.

THIN SECTION: Equigranular, allotriomorphic, granitic texture with anhedral crystals, 0.1-1mm across. Relict biotite flakes altered to chlorite, trace amounts of tourmaline and opaque(?). Secondary carbonate replaces quartz & feldspar; sericite partly replaces feldspar & occurs as void infillings.

MINERALOGY:

Quartz occurs as fine grained 0.1mm blebs.

Orthoclase occurs as anhedral, fine grained, poikilitic grains intergrown with quartz, sometimes forming granophyre.

Albite occurs as fine grained (.1-0.5mm), anhedral, grains, often partly replaced by sericite.

Sericite is very fine grained flakes interstitial to K-spar.

Biotite is completely replaced by aggregates of chlorite-opaque-carbonate; relicts are ragged and 0.1mm across.

SPECIMEN : #9 80-16-359m

ROCK TYPE: Quartz diorite (tonalite)

MODE:		Secondary:	Accessory:
	Quartz (35%)	Chlorite	Tourmaline
	Plagioclase (45%)	Carbonate	Apatite
	K-feldspar (10%)	Sericite	Zircon
	Biotite (8%)	Zoisite	**Sphene** (?)
	Hornblende (2%)		

HANDSPECIMEN: Grey, speckled black, massive, porphyritic quartz diorite consisting of 5-10mm feldspar megacrysts set in a medium grained, 1-5mm, matrix composed of quartz, K-spar, plagioclase, biotite and hornblende prisms.

THINSECTION: subporphyritic, hypidiomorphic-granular texture consisting of descrete blocky crystals of andesine & biotite enveloped by poikilitic blebs of quartz and K-feldspar. Relict amphibole largely altered to chlorite & carbonate.

Biotite partly altered to chlorite-epidote-opaques. Sericite & carbonate filling cracks & cores of plagioclase & cracks in quartz and K-spar. Deuteric green amphibole fills voids & fractures. Zoned tourmaline crystals.

MINERALOGY:

Quartz may occur as 4mm to 0.1mm blebs.

Andesine forms subhedral, blocky, normally zoned crystals partly altered to calcite & sericite in core regions.

K-spar forms 2-10mm poikilitic clots & is cut by cracks filled by carbonate & sericite.

Biotite is the predominant mafic occuring as 1-2mm flakes variably altered to chlorite. Usually contains microinclusions of apatite, zircon.

Scheelite(?) occurs as 0.05mm anhedral, accessory grains.

Tourmaline occurs as brown 0.1mm prisms.

Hornblende, to 1mm size, is mostly altered to chlorite & carbonate.

Ti-oxide, occur as patches up to 0.25mm in size.

ELEMENTAL ANALYSES

DUBLIN GULCH ROCK GEOCHEMISTRY

SEMI QUANTITIVE SPECTROGRAPHIC ANALYSES

ELEMENT		LEUCOCRATIC GRANITE VEIN (DDH 80-53, 112.7m)	GRANODIORITE (DDH 80-16, 359 m)	BIOTITE QUARTZITE HORNFELS (DRILL ZONE)	DARK GREEN SKARN (1e, LOWER RAY GULCH	QUARTZ MONZONITE (CENTER OF LOWER RAY GULCH INTRUSION	BIOTITE-QUARTZ MONZONITE (CHILL MARGIN OF LOWER RAY GULCH INTRUSION
Al	%	10	10	10	5	7	10
Sb	ppm	Ø	Ø	Ø	Ø	Ø	Ø
As	ppm	Ø	Ø	Ø	Ø	Ø	Ø
Ba	ppm	2000	2000	700	100	700	5000
Be	ppm	Ø	Ø	Ø	Ø	Ø	Ø
Bi	ppm	Ø	Ø	Ø	Ø	Ø	Ø
B	ppm	Ø	Ø	Ø	30	Ø	Ø
Cd	ppm	Ø	Ø	Ø	Ø	Ø	Ø
Ca	%	2%	3%	0.7%	7%	2%	2%
Cr	ppm	100	150	150	50	200	100
Co	ppm	Ø	Ø	Ø	Ø	Ø	Ø
Cu	ppm	2	2	2	1	1	5
Ge	ppm	Ø	Ø	Ø	Ø	Ø	Ø
Fe	%	1.5%	1.5%	2.0%	7.0%	0.2%	1%
Pb	ppm	100	30	10	Ø	Ø	30
Mg	%	1%	1%	1%	1%	0.5%	0.5%
Mn	ppm	700	1000	500	5000	150	100
Mo	ppm	Ø	Ø	Ø	Ø	Ø	Ø
Ni	ppm	Ø	20	20	30	Ø	Ø
Nb	ppm	Ø	Ø	Ø	Ø	Ø	Ø
K	%	2%	2%	2%	Ø	0.5%	2%
Si	%	30	30	20	20	30	30
Ag	ppm	1	1	Ø	Ø	Ø	Ø
Na	%	2%	2%	2%	0.3%	2%	2%
Th	ppm	Ø	Ø	Ø	Ø	Ø	Ø
Sn	ppm	Ø	Ø	Ø	10	Ø	Ø
Ti	ppm	3000	5000	3000	2000	3000	2000
V	ppm	Ø	Ø	Ø	Ø	Ø	Ø
Zn	ppm	50	50	Ø	500	Ø	30
Zr	ppm	100	100	100	100	70	100

SEMI QUANTITIVE SPECTROGRAPHIC ANALYSES

>5000ppm= >5000ppm	50ppm=25-100ppm
5000ppm=2500-10000ppm	20ppm=10-50ppm
2000ppm=1000-4000ppm	10ppm=5-20ppm
1000ppm=500-2000ppm	5ppm=2-10ppm
500ppm=250-1000ppm	2ppm=1-4ppm
200ppm=100-400ppm	1ppm=0.5-2ppm
100ppm=50-200ppm	bcl=below concentration limit

Ranges for Iron, Calcium & Magnesium are reported in %

WHOLE ROCK GEOCHEMISTRY

ELEMENT	LEUCOCRATIC GRANITE VEIN (DDH 80-53, 112.7m)	GRANODIORITE (DDH 80-16, 359 m)	BIOTITE QUARTZITE HORNFELS (DRILL ZONE)	DARK GREEN SKARN (1e, LOWER RAY GULCH	QUARTZ MONZONITE (CENTER OF LOWER RAY GULCH INTRUSION	BIOTITE-QUARTZ MONZONITE (CHILL MARGIN OF LOWER RAY GULCH INTRUSION
SiO_2 %	66.16	65.37	70.08	47.21	70.84	69.58
Al_2O_3 %	16.38	15.97	14.21	8.34	16.21	16.48
Fe_2O_3 %	3.50	3.91	5.63	19.27	0.89	1.88
TiO_2 %	0.60	0.57	0.65	0.45	0.46	0.36
MgO %	1.27	1.64	1.45	2.16	0.74	0.49
CaO %	3.02	3.87	0.61	21.07	3.88	2.73
Na_2O %	3.18	2.76	3.07	0.72	4.64	2.92
K_2O %	4.69	4.40	3.25	0.21	0.43	4.80
P_2O_5 %	0.14	<0.01	<0.01	<0.01	<0.01	<0.01
L.O.I. %	1.57	1.41	1.37	1.17	1.80	1.04
S ppm	<50	<50	<50	<50	<50	<50
Mo ppm	2	1	1	1	1	1
Pb ppm	110	20	9	1	2	10
W ppm	1	1	1	1	1	1
F ppm	690	670	300	230	370	380
Ba ppm	290	320	90	40	95	680
Li ppm	10	10	8	2	2	4
Rb ppm	64	30	36	1	4	60
Sr ppm	80	116	24	270	200	124
Rb/Sr	0.8	0.517	1.5	0.0037	0.002	0.48

DUBLIN GULCH GEOLOGICAL PROGRAM

BUDGET EXPENDITURES

April 1 to November 30, 1981

LABOUR

Geology:

Name & Position	Days	Rate	Extension
G. Nordin Senior Geologist	39.27	$350.00/day	$ 13,744.50
D. Shaw Senior Project Geologist	35.48	$325.00/day	11,531.00
G. Norman Senior Project Geologist	.429	$325.00/day	139.42
G. Rodgers Geologist	119.43	$225.00/day	26,871.75
D. Kelly Geologist	8.92	$225.00/day	2,007.00
R. Rainbird Geologist	2.	$225.00/day	450.00
C. Orssich Junior Geologist	47.71	$200.00/day	9,542.00
D. Bonnar Junior Geologist	20.5	$200.00/day	4,100.00
D. Arthur Geological Assistant #2	116.56	$125.00/day	14,570.00
P. Romard Geological Assistant #2	89.	$125.00/day	11,125.00
B. Cahill Geological Assistant #2	2.	$125.00/day	250.00

Geology Cont'd

Name & Position	Days	Rate	Extension
J. Donnelly Geological Assistant #2	1.	$125.00/day	$ 125.00
V. Koyanagi Geological Assistant #3	66.57	$ 95.00/day	6,324.15
R. Gardener Geological Assistant #3	80.15	$ 95.00/day	7,614.25
T. Olson Geological Assistant #4	30.	$ 85.00/day	2,550.00
	TOTAL GEOLOGY		$110,944.07

Operations:

G. Beebe Camp Cook #1	42.	$175.00/day	$ 735.00
Luke Mongeon	15. 33.	$145.00/day $175.00/day	2,175.00 5,775.00
A. MacKenzie Field Supervisor #2	2.572	$175.00/day	450.10
N. Marcy Field Supervisor #2	13.	$175.00/day	2,275.00
E. Ackerly Field Technician #1	15.5	$165.00/day	2,557.50
D. Larsen Field Technician #1	13.	$165.00/day	2,145.00
B. Fischer Field Technician #2	2.572	$145.00/day	372.94
J. Muir Field Technician #2	1.	$145.00/day	145.00
M. Wyllie Field Technician #2	5.	$145.00/day	725.00
A. McIsaac Field Technician #3	1.	$125.00/day	125.00
	TOTAL OPERATIONS		$ 17,480.54

Drafting:

Name & Position	Days/Hours	Rate	Extension
C. Longtin Draftsperson	11.85 days 192 hours	$175.00/day 22.00/hour	$ 2,073.75 4,224.00
V.Gosselin Draftsperson	6.36 hours	$ 22.00/hour	117.92
K. Nash Draftsperson	294.5 hours	$ 22.00/hour	6,479.00
A. Davis Draftsperson	70 hours	$ 22.00/hour	1,540.00
T. Dhani Draftsperson	292.13 hours	$ 22.00/hour	6,426.86
G. Jacob Draftsperson	3 hours	$ 22.00/hour	66.00
K. Konstanciak Draftsperson	80.5 hours	$ 22.00/hour	1,771.00
G. Vanderpas Draftsperson	3.86 hours	$ 22.00/hour	84.92
M. Urchenko Draftsperson	58 hours	$ 22.00/hour	1,276.00
J. P. Paquet Draftsperson	113.64 hours	$ 22.00/hour	2,500.08
J. Armstrong Drafting Secretary	93. hours	$ 16.00/hour	1,488.00
S. Oxenbury Draftsperson	8.85 days	$175.00/day	1,548.75
D. Beardmore Drafting Secretary	26.86 hours	$ 16.00/hour	677.76
N. Raffle Drafting Secretary	7 hours	$ 16.00/hour	112.00
	TOTAL DRAFTING		$ 30,386.04

Management:

Name & Position	Days	Rate	Extension
D. Dick Geological Manager	3.	$425.00/day	$ 1,275.00
M. J. Beley Project Manager	2.572	$250.00/day	643.00
R. Barclay Project Manager	2.	$250.00/day	500.00
I. Johnson Operations Manager	.929	$200.00/day	185.80
C. Johnson Yukon Operations Manager	1	$200.00/day	200.00
	TOTAL MANAGEMENT		$ 2,803.80

Expediting/Support Services:

A. Thacker Purchaser	1.84	$135.00/day	$ 248.40
S. Oxenbury Accountant	13.92	$145.00/day	2,018.40
C. Smith Accountant	1.72	$145.00/day	249.40
V. Kwantes Secretary	4.63	$135.00/day	625.05
E. Hempsall Secretary	1.13	$135.00/day	152.55
P. Dickenson Secretary	13.75	$135.00/day	1,856.25
	TOTAL EXPEDITING AND SERVICES		$ 5,150.05

Geology	$110,944.07
Operations	17,480.54
Drafting	30,386.04
Management	2,803.80
Expediting/Support Services	5,150.05
TOTAL LABOUR	$166,764.50

DISBURSEMENTS

CODE	DISBURSEMENTS	EXPENDITURES AS OF NOVEMBER 30
1000	Accommodation	$ 703
1500	Aircraft Charter	
1518	Helicopter Charter	14,036
1527	Helicopter Fuel	4,483
1800	Assaying	
	Rock Samples	875
2500	Camp Construction	
2523	Electrical Supplies	175
2547	Lumber Supplies	292
2561	Plumbing Supplies	171
2600	Camp Equipment	1,841
2800	Caterpillar Tractor	
2826	Fuel	119
3200	Communications	
3268	Radio Rental	1,736
3276	Telephone Rental	1,318
3277	Telex Rental	2
3224	Equipment & Supplies	30
3500	Copying	360
3900	Drafting	
3919	Contract	13,005
3966	Reproduction	6,263
3924	Supplies	81
4700	Freight	827

CODE	DISBURSEMENTS	EXPENDITURES AS OF NOVEMBER 30
4800	Fuel	
4826	Camp Fuel	$ 2,330
4828	Equipment Fuel	1,154
5000	Geochemistry Analysis	16,222
5300	Groceries	17,225
6000	Linecutting Equipment & Supplies	151
7000	Office Supplies	3,141
7800	Small Field Tools	3,353
8000	Surveying Equipment & Supplies	1,252
8500	Travel (Personnel)	9,806
9000	Vehicles	
9026	Fuel	2,838
9060	Parts & Service	4,242
9068	Rentals	8,087
	TOTAL DISBURSEMENTS	$116,118

TOTAL BUDGET EXPENDITURES

DISBURSEMENTS	$ 116,118
LABOUR	166,765
RENTALS	5,882
EXPEDITING (WAREHOUSING)	8,121
TOTAL	$ 296,886



CLAIM RENEWAL DATES

- SEPTEMBER 2, 1986
- SEPTEMBER 15, 1986
- SEPTEMBER 29, 1986
- OCTOBER 1, 1986
- NOVEMBER 28, 1986
- SEPTEMBER 17, 1986
- AUGUST 11, 1982
- OCTOBER 1, 1990

SCALE 0 1/2 1 2 MILES

090915

CANADA TUNGSTEN MINING CORPORATION

DUBLIN GULCH

1981 GEOLOGICAL EXPLORATION PROGRAMME

CLAIM STATUS FALL 1981

AND CLAIM RENEWAL DATES

DATE: NOVEMBER, 1981	JOB NO: 81-06G	FIG NO: 2
DRAWN BY: T. Dhani		
REVISED BY: D. Arthur	SCALE: 1" = 1/2 MILE	

BEMA INDUSTRIES LTD.

LEGEND

CLAIM GROUP BOUNDARY

INDEX MAP BOUNDARY - 1:5,000

7 INDEX MAP SECTION NO

LIMIT OF GEOLOGICAL MAPPING

CLAIM STATUS

1. Location Plan - 1:250,000
2. Claim Status - 1" - ½ Mi.
3. Key Map - 1:25,000
4. Regional Geology - 1:25,000
5.a Schematic Section to illustrate the Relation of the various Fold Phases
5.b Schematic Section through the Dublin Gulch area
6. Geology Map - 1:5,000 , Index 6
7. Geology Map - 1:5,000 , Index 7
8. Geology Map - 1:5,000 , Index 8
9. Geology Map - 1:5,000 , Index 9
10. Metallogenic Control - 1:50,000
11. Detailed Geology and Trench Location Map 1:1,000 (Drill Zone)
12. Ray Gulch Geology (Looking West) 1:500
13a. East-West Geological Cross Section E-E'
13b. East-West Geological Cross Section FG-FG'
14. Mayo Silver Mines (Geology)
15. Heavy Mineral Sample Location Map WO_3 1:50,000
16. Heavy Mineral Sample Location Map Sn 1:50,000
17. Heavy Mineral Sample Location Map Au 1:50,000
18. Soil Geochemistry, Index 6 Au/Ag
19. Soil Geochemistry, Index 7 Au/Ag
20. Soil Geochemistry, Index 6 WO_3/Sn
21. Soil Geochemistry, Index 7 WO_3/Sn

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CANADA TUNGSTEN MINING CORPORATION

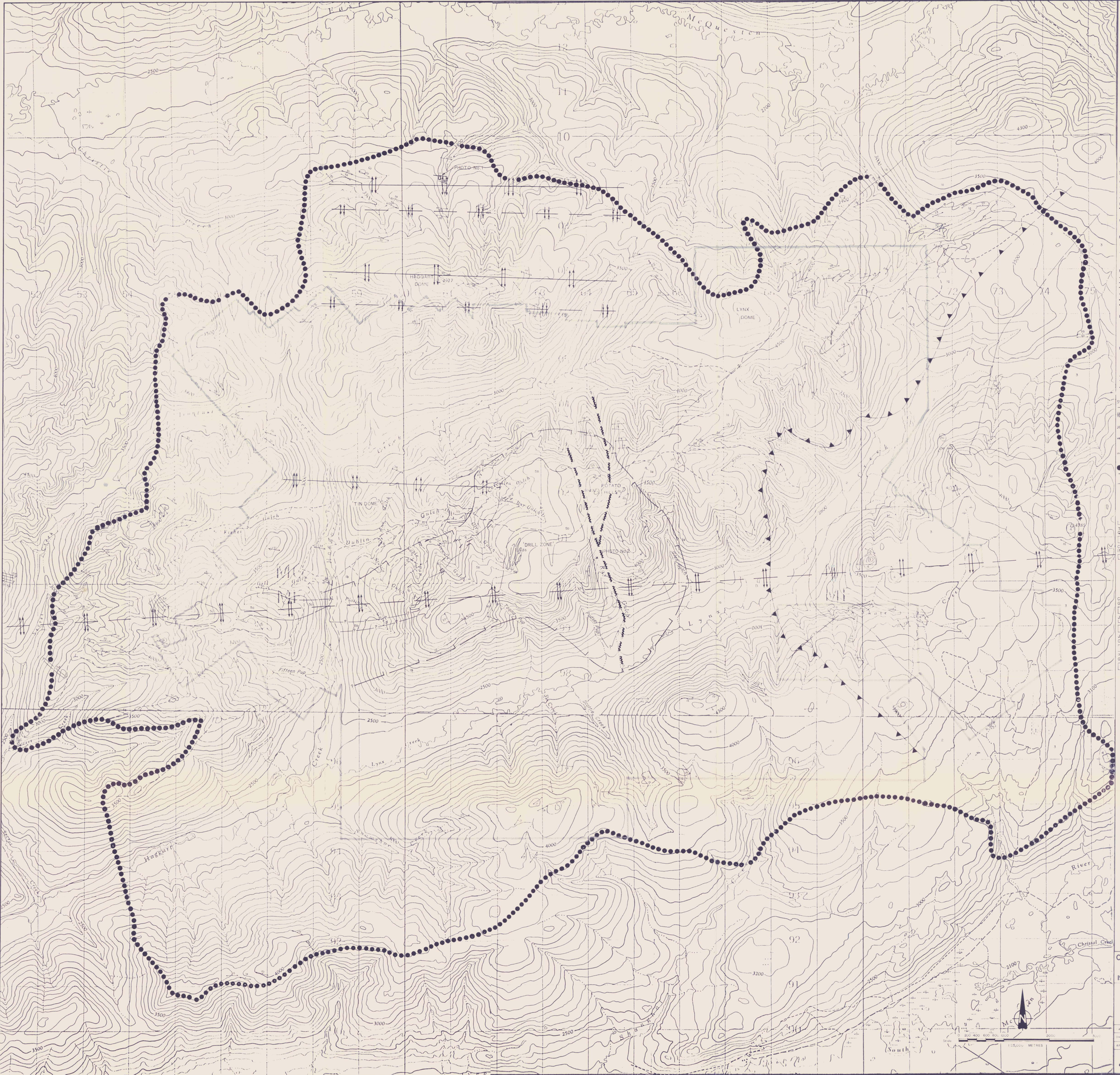
DUBLIN GULCH Y T

1981 GEOLOGICAL EXPLORATION PROGRAMME

KEY MAP

DATE NOVEMBER 1981	JOB NO. 81-06G	FIG. 3
DRAWN BY K.K., T.D.	SCALE 1:25,000	METRES
APPROVED BY		

BEMA INDUSTRIES LTD.


McQuesten
PHOTO No.1
HAGGART DOME
LYNX DOME
POTATO HILL
PHOTO No.2
DRILL ZONE
TIN DOME
Gulch
Dublin
Fifteen Pup
Lynx
Haggart
Creek
River
Christal Creek
South
Ridge
Mountain
Creek
Gulch
Pup
Ridge
Mountain
Creek
Gulch
Pup
Ridge
Mountain
Creek
Gulch
Pup

458,000 E | 459,000 E | 460,000 E | 461,000 E | 462,000 E | 463,000 E

7,103,000 N | 7,102,000 N | 7,101,000 N | 7,100,000 N | 7,099,000 N

Dublin Gulch | Fisher Gulch | Creek | Gulch | Ridge | Road | Camp Site | Trail | Pit | Dump | Adit | Caterpillar | Guich

Scale 0 20 40 60 80 100 200 300 400 500 Metres

LEGEND

SYMBOLS

GEOLOGICAL BOUNDARY — defined / approximate / assumed

LIMIT of GEOLOGICAL MAPPING

OUTCROP

FELSENMEER

TALUS

FAULTS — defined / approximate / assumed

VEIN STRUCTURE — defined / approximate / assumed

BEDDING — horizontal / vertical / inclined / overturned

FOLIATION — horizontal / vertical / inclined / unknown

ANTICLINE — defined / approximate / overturned

SYNCLINE — defined / approximate / overturned

JOINTING — vertical: weak / moderate / strong; inclined: weak / moderate / strong

MINOR FOLDS — style & direction

GLACIAL STRIAE — movement known / movement known

Biotite-Quartzite Hornfels and Calc-Silicate Hornfels zone

SHAFT

RAISE

WINZE

ADIT or TUNNEL — caved

QUARRY or MINE — active / abandoned

TRENCH — closed end / open end

PIT

GRAVEL PIT — active / dormant

DUMP or TAILINGS

DDH & NUMBER — 80-00 location; surface projection

OVERBURDEN DRILL HOLE — OBH-80 location

CHIP SAMPLE

ROCK SAMPLE

FLOAT — with rock type

SURVEY STATION

TRIANGULATION POINT

CLAIM POST

CLAIM BOUNDARY

ROAD

CAT TRAIL

CABIN

SPRING

LITHOLOGY

TERTIARY
QUARTZ-ARSENOPYRITE-SCORODITE VEIN ROCK
6

CRETACEOUS
INTRUSIVE
5

- 5a Aplite / leucocratic granite
- 5b Granodiorite
- 5d Quartz-feldspar porphyry
- 5e Lamprophyre / biotite diorite

CRETACEOUS
GREENSTONE
4

JURASSIC
LOWER SCHIST UNIT
3

- 3a Graphitic phyllite & schist
- 3b Quartz sericite phyllite & schist
- 3c Thinly bedded micaceous quartzite and minor interbedded phyllite

JURASSIC
CENTRAL QUARTZITE UNIT
2

PRECAMBRIAN
GRIT & UPPER SCHIST UNITS
1

- 1a Gritty quartzite, thick & thin bedded, with/without pelitic laminae
- 1b Micaceous quartzite
- 1c Phyllite
  - Ms Muscovite-sericite
  - Cy Chlorite
  - Cg Graphite
- 1d Interlayered quartzite & biotite schist
- 1e Pyroxene skarn (Tungsten Bearing)
- 1f Wollastonite quartz skarn
- 1g Marble / limestone
- 1h Massive quartzite

SHEET INDEX

	3	2	1
4	5		7
11	10	9	8
12	13		

090915

CANADA TUNGSTEN MINING CORPORATION
DUBLIN GULCH Y.T.
1981 GEOLOGICAL EXPLORATION PROGRAMME

GEOLOGY MAP
INDEX-6

DATE NOVEMBER, 1981	JOB NO 81-066	FIG NO 6
DRAWN BY J.P. Paquet	SCALE 1:5,000	METRES
APPROVED BY		

BEMA INDUSTRIES LTD.

BEMA DRAFTING

464,000E 465,000E 466,000E 467,000E 468,000E 469,000E

7,103,000 N 7,102,000 N 7,101,000 N 7,100,000 N 7,099,000 N

Upper Schist Fm
Central Quartzite Fm

Grit Unit Upper Schist Fm

Upper Schist Fm Central Quartzite Fm

Creek

Scale 0 20 40 60 80 100 200 300 400 500 Metres

LEGEND

SYMBOLS

GEOLOGICAL BOUNDARY — defined; approximate; assumed

LIMIT of GEOLOGICAL MAPPING

OUTCROP

FELSENMEER

TALUS

FAULTS — defined; approximate; assumed

VEIN STRUCTURE — defined; approximate; assumed

BEDDING — horizontal; vertical; inclined; overturned

FOLIATION — horizontal; vertical; inclined; unknown

ANTICLINE — defined; approximate; overturned

SYNCLINE — defined; approximate; overturned

JOINTING — vertical: weak, moderate, strong; inclined: weak, moderate, strong

MINOR FOLDS — style & direction

GLACIAL STRIAE — movement known; movement known

Thrust Fault (inferred)

SHAFT

RAISE

WINZE

ADIT or TUNNEL — caved

QUARRY or MINE — active; abandoned

TRENCH — closed end; open end

PIT

GRAVEL PIT — active; dormant

DUMP or TAILINGS

DDH & NUMBER — 80-00 location; 45° surface projection

OVERBURDEN DRILL HOLE — OBH-80 location

CHIP SAMPLE

ROCK SAMPLE

FLOAT — with rock type

SURVEY STATION

TRIANGULATION POINT

CLAIM POST

CLAIM BOUNDARY

ROAD

CAT TRAIL

CABIN

SPRING

LITHOLOGY

TERTIARY
QUARTZ - ARSENOPYRITE - SCORODITE VEIN ROCK
6

CRETACEOUS INTRUSIVE
5
- 5a Aplite / leucocratic granite
- 5b Granodiorite
- 5d Quartz-feldspar porphyry
- 5e Lamprophyre / biotite diorite

CRETACEOUS GREENSTONE
4

JURASSIC LOWER SCHIST UNIT
3
- 3a Graphitic phyllite & schist
- 3b Quartz sericite phyllite & schist
- 3c Thinly bedded micaceous quartzite and minor interbedded, phyllite

JURASSIC CENTRAL QUARTZITE UNIT
2

PRECAMBRIAN GRIT & UPPER SCHIST UNITS
1
- 1g Gritty quartzite, thick & thin bedded, with/without pelitic laminae
- 1b Micaceous quartzite
- 1c Phyllite
  - c Muscovite — sericite
  - c_1 Chlorite
  - c_2 Graphite
- 1d Interlayered quartzite & biotite schist
- 1e Pyroxene skarn (Tungsten Bearing)
- 1f Wollastonite quartz skarn
- 1g Marble / limestone
- 1h Massive quartzite

SHEET INDEX

	3	2	1
4	5	6	
11	10	9	8
12	13		

090915

CANADA TUNGSTEN MINING CORPORATION
DUBLIN GULCH Y.T.
1981 GEOLOGICAL EXPLORATION PROGRAMME

GEOLOGY MAP
INDEX-7

DATE NOVEMBER 1981	JOB NO 81-06 G	FIG NO 7
DRAWN BY K.K.,T.D.		
APPROVED BY	SCALE 1:5,000	METRES

BEMA INDUSTRIES LTD.



LEGEND

- △ Anomalous Placer
- ○ Tungsten Skarn
- Fault
- Anticline (inferred)
- Thrust Fault
- Geological Contact
- Intrusive
- Ag, Pb, Zn / Sb
- W
- Sn
- Au

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CANADA TUNGSTEN MINING CORPORATION

DUBLIN GULCH

1981 GEOLOGICAL EXPLORATION PROGRAMME

METALLOGENIC CONTROL

DATE: NOVEMBER, 1981	JOB NO 81-06G	FIG NO 10
DRAWN BY: JPP		
APPROVED BY: G.R.	SCALE: 1:50,000 METRES	

BEMA INDUSTRIES LTD.

BEMA DRAFTING



LEGEND

SYMBOLS

GEOLOGICAL BOUNDARY: defined; approximate; assumed

LIMIT of GEOLOGICAL MAPPING

OUTCROP

FELSENMEER

TALUS

FAULTS: defined; approximate; assumed

VEIN STRUCTURE: defined; approximate; assumed

BEDDING: horizontal; vertical; inclined; overturned

FOLIATION: horizontal; vertical; inclined; unknown

ANTICLINE: defined; approximate; overturned

SYNCLINE: defined; approximate; overturned

JOINTING: vertical — weak, moderate, strong; inclined — weak, moderate, strong

MINOR FOLDS: style & direction

GLACIAL STRIAE: movement known; movement known

SHAFT: active; BRAISE; SUMP

WINZE: active

ADIT or TUNNEL: open; closed

QUARRY or MINE: active; abandoned

TRENCH: closed end; open end

PIT

GRAVEL PIT: active; dormant

DUMP or TAILINGS

DDH & NUMBER: 80-00 location; surface projection

OVERBURDEN DRILL HOLE: 80-80 location

CHIP SAMPLE

ROCK SAMPLE

FLOAT: with rock type

SURVEY STATION

TRIANGULATION POINT

CLAIM POST

CLAIM BOUNDARY

ROAD

CAT TRAIL

CABIN

SPRING

LITHOLOGY

QUARTZ ARSENOPYRITE - SCORODITE VEIN ROCK

6

CRETACEOUS INTRUSIVE

5

- 5a Aplite / leucocratic granite
- 5b Granodiorite
- 5d Quartz-feldspar porphyry
- 5e Lamprophyre / biotite diorite

CRETACEOUS GREENSTONE

4

JURASSIC LOWER SCHIST UNIT

3

- 3a Graphitic phyllite & schist
- 3b Quartz sericite phyllite & schist
- 3c Thinly bedded micaceous quartzite and interbedded phyllite

JURASSIC UNDIFFERENTIATED UNIT

2

PRECAMBRIAN AND/OR PALEOZOIC (pC? & UPPER SCHIST UNITS)

UPPER SCHIST UNITS

1

- 1g Gritty quartzite, thick to thin bedded, with lenses of Pebbly quartzite
- 1f Micaceous quartzite
- 1i Phyllite
- Muscovite - sericite
- Chlorite
- Graphite
- 1d Interlayered quartzite & biotite schist
- 1e Pyroxene skarn (Tungsten bearing)
- 1f Microgranite quartz vein
- 1g Marble/limestone
- Massive quartzite

Scale: 0 50 100 200 300 400 500 Metres

099915

CANADA TUNGSTEN MINING CORPORATION

DUBLIN GULCH

1981 GEOLOGICAL EXPLORATION PROGRAMME

DETAILED GEOLOGY AND TRENCH LOCATION MAP

DATE: NOVEMBER, 1981	JOB NO. 81-066	FIG NO. 11
DRAWN BY: J.P.Paquet, T.D.	SCALE 1/1000	METRIC
GEOLOGY BY: J.P.Paquet, T.D.		

BEMA INDUSTRIES LTD.

BEMA DRAFTING

SECTION LOOKING WEST

T'

T

ELEVATION

SECTION AA'

SECTION BB'

SECTION CC'

SECTION DD'

ELEVATION



LEGEND

LITHOLOGY

TERTIARY
QUARTZ-ARSENOPYRITE-SCORODITE VEIN ROCK
6

CRETACEOUS
INTRUSIVE
5
- 5a Aplite / leucocratic granite
- 5b Granodiorite
- 5d Quartz-feldspar porphyry
- 5e Lamprophyre / biotite diorite

CRETACEOUS
GREENSTONE
4

JURASSIC
LOWER SCHIST UNIT
3
- 3a Graphitic phyllite & schist
- 3b Quartz sericite phyllite & schist
- 3c Thinly bedded micaceous quartzite and minor interbedded phyllite

JURASSIC
CENTRAL QUARTZITE UNIT
2

PRECAMBRIAN
GRIT & UPPER SCHIST UNITS
1
- 1a Gritty quartzite, thick & thin bedded, with/without pelitic laminae
- 1b Micaceous quartzite
- 1c Phyllite
  - c_1 : Muscovite – sericite
  - c_2 : Chlorite
  - c_3 : Graphite
- 1d Interlayered quartzite & biotite schist
- 1e Pyroxene skarn (Tungsten bearing)
- 1f Wollastonite quartz skarn
- 1g Marble / limestone
- 1h Massive quartzite

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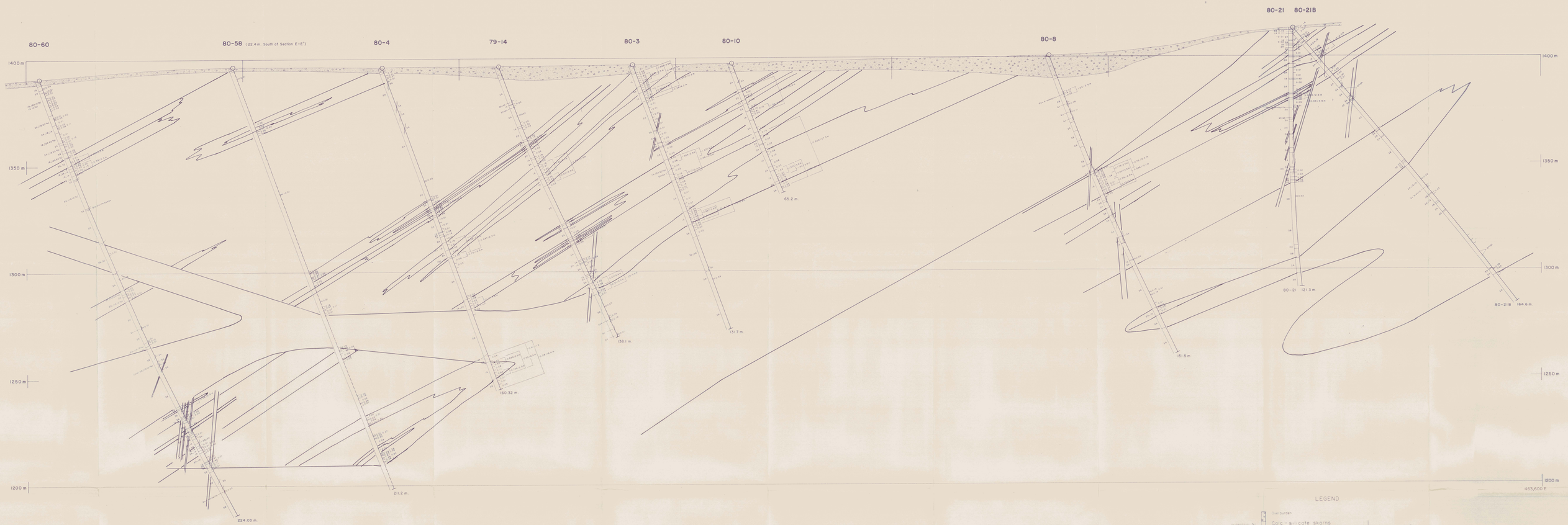
CANADA TUNGSTEN MINING CORPORATION
DUBLIN GULCH
1981 GEOLOGICAL EXPLORATION PROGRAMME

RAY GULCH GEOLOGY
SECTION TT'

DATE: NOVEMBER, 1981	JOB NO: 81-06G	FIG NO: 12	
DRAWN BY: T. Dhani			
APPROVED BY: G.R.	SCALE: 1:500	METRES	

BEMA INDUSTRIES LTD.

LOOKING NORTH



LEGEND

Overburden

Calc-Silicate skarns

4 Skarn, massive to laminated, medium to dark green

1B Sub-skarn, massive to laminated, dull green to grey green

Biotite-quartz hornfels

2A Biotite quartzite (chert ± andalusite)

Granitic intrusive rocks

3A Granite, ranging to very fine grained, felsite

1B Biotite granodiorite, medium to coarse grained

5D Quartz diorite

Qv, Qvb Quartz vein, veins

Dykes

SCALE 1:400

Metres 0 5 10 20 30 40 50 Metres

Feet 33.3 16.7 0 33.3 66.7 100 133.3 166.7 Feet

090915

CANADA TUNGSTEN MINING CORPORATION

DUBLIN GULCH

EAST-WEST GEOLOGICAL CROSS SECTION E-E'

DIAMOND DRILL HOLE 80-60 80-58 80-4 79-14 80-3 80-10 80-8 80-21/21B

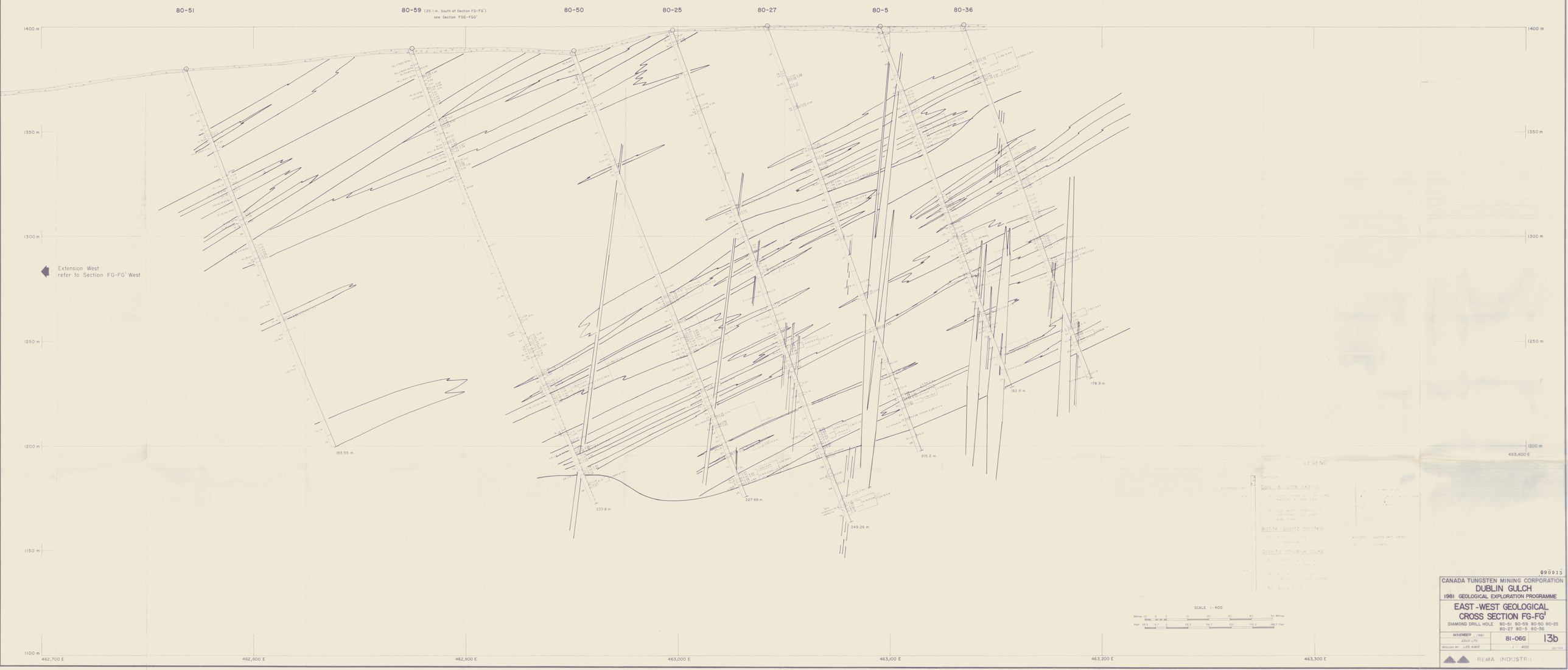
DATE NOVEMBER, 1981 DWG. NO. 81-066 FIG. NO. 13a

DRAWN BY EDCO LTD.

GEOLOGY BY LES KAYE SCALE 1 / 400 METRES

BEMA INDUSTRIES LTD.

LOOKING NORTH



LEGEND

SCALE 1:400

099915

CANADA TUNGSTEN MINING CORPORATION

DUBLIN GULCH

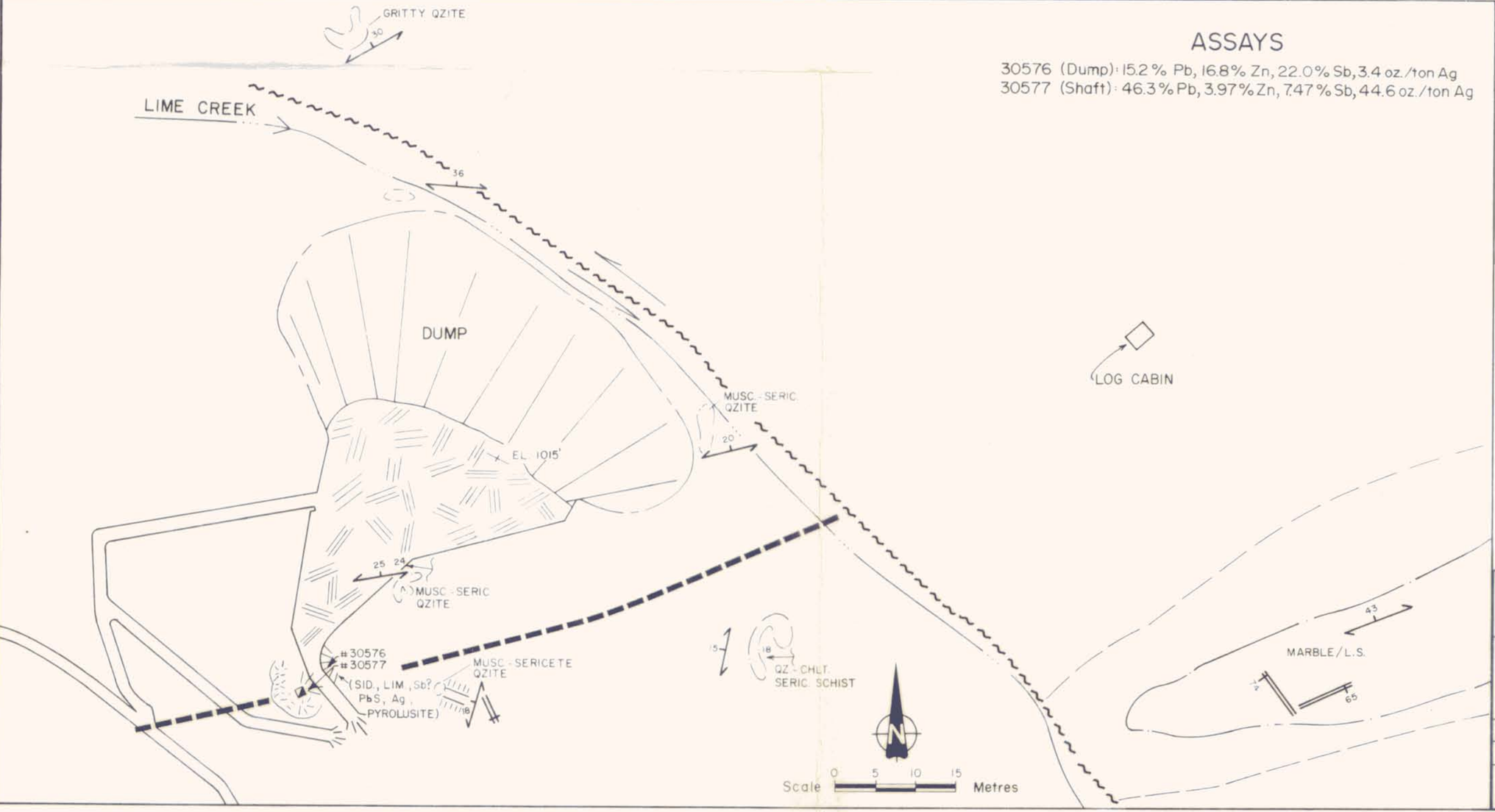
1981 GEOLOGICAL EXPLORATION PROGRAMME

EAST-WEST GEOLOGICAL CROSS SECTION FG-FG'

DIAMOND DRILL HOLE 80-51 80-59 80-50 80-25 80-27 80-5 80-36

NOVEMBER 1981	81-06G	13b
DRG NO.		
GEOLOGY BY LEE KAYE	1" = 400'	

REMA INDUSTRIE



ASSAYS

30576 (Dump): 15.2 % Pb, 16.8% Zn, 22.0% Sb, 3.4 oz./ton Ag
30577 (Shaft): 46.3 % Pb, 3.97% Zn, 7.47 % Sb, 44.6 oz./ton Ag

LEGEND

SYMBOLS

OUTCROP

FAULTS
- defined
- approximate
- assumed

VEIN STRUCTURE
- defined
- approximate
- assumed

FOLIATION
- horizontal
- vertical
- inclined
- unknown

JOINTING
- vertical: weak, moderate, strong
- inclined: weak, moderate, strong

GEOLOGICAL CONTACT

SHAFT

TRENCH
- closed end
- open end

DUMP or TAILINGS

CABIN

090915

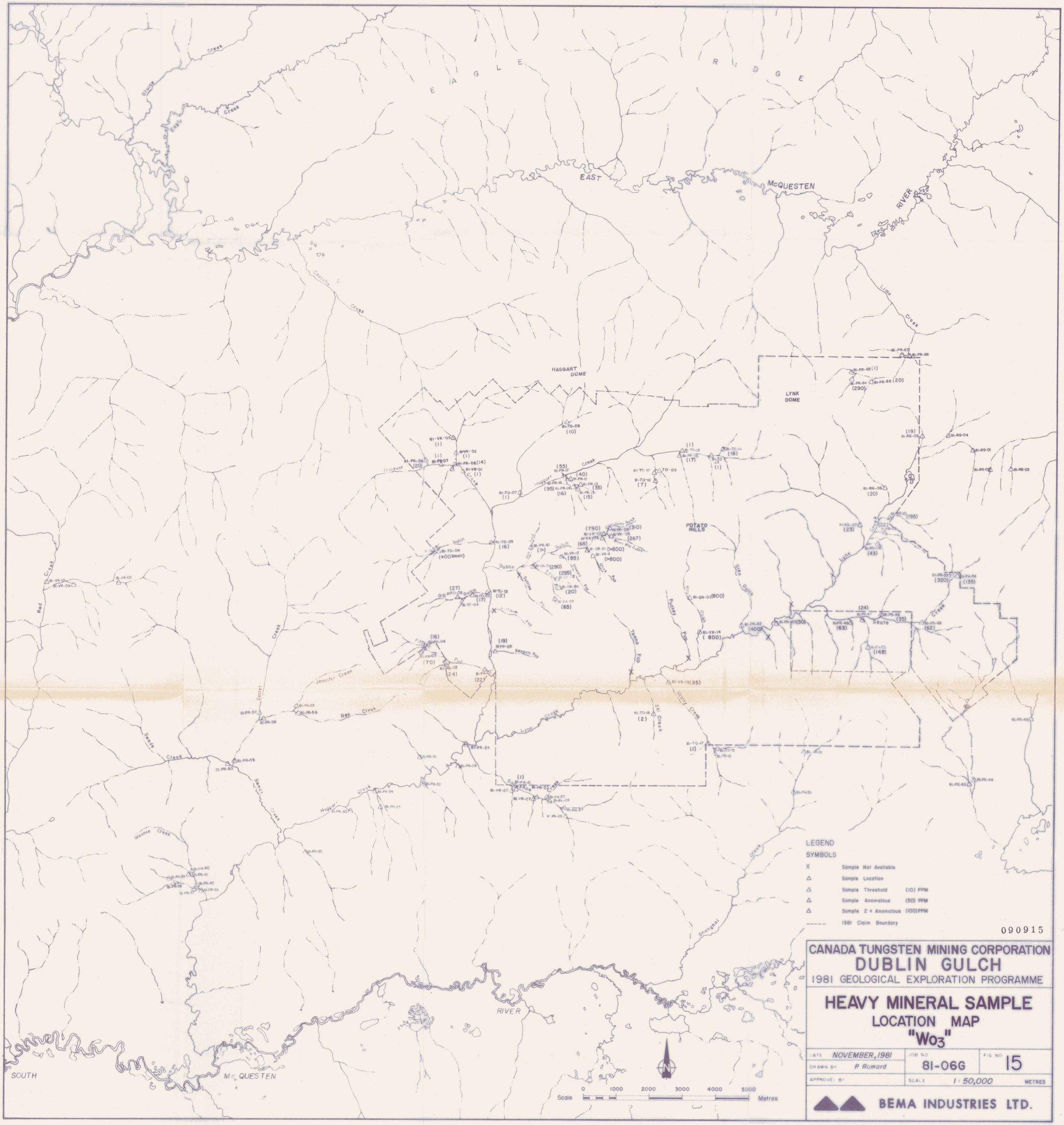
CANADA TUNGSTEN MINING CORPORATION
DUBLIN GULCH
1981 GEOLOGICAL EXPLORATION PROGRAMME

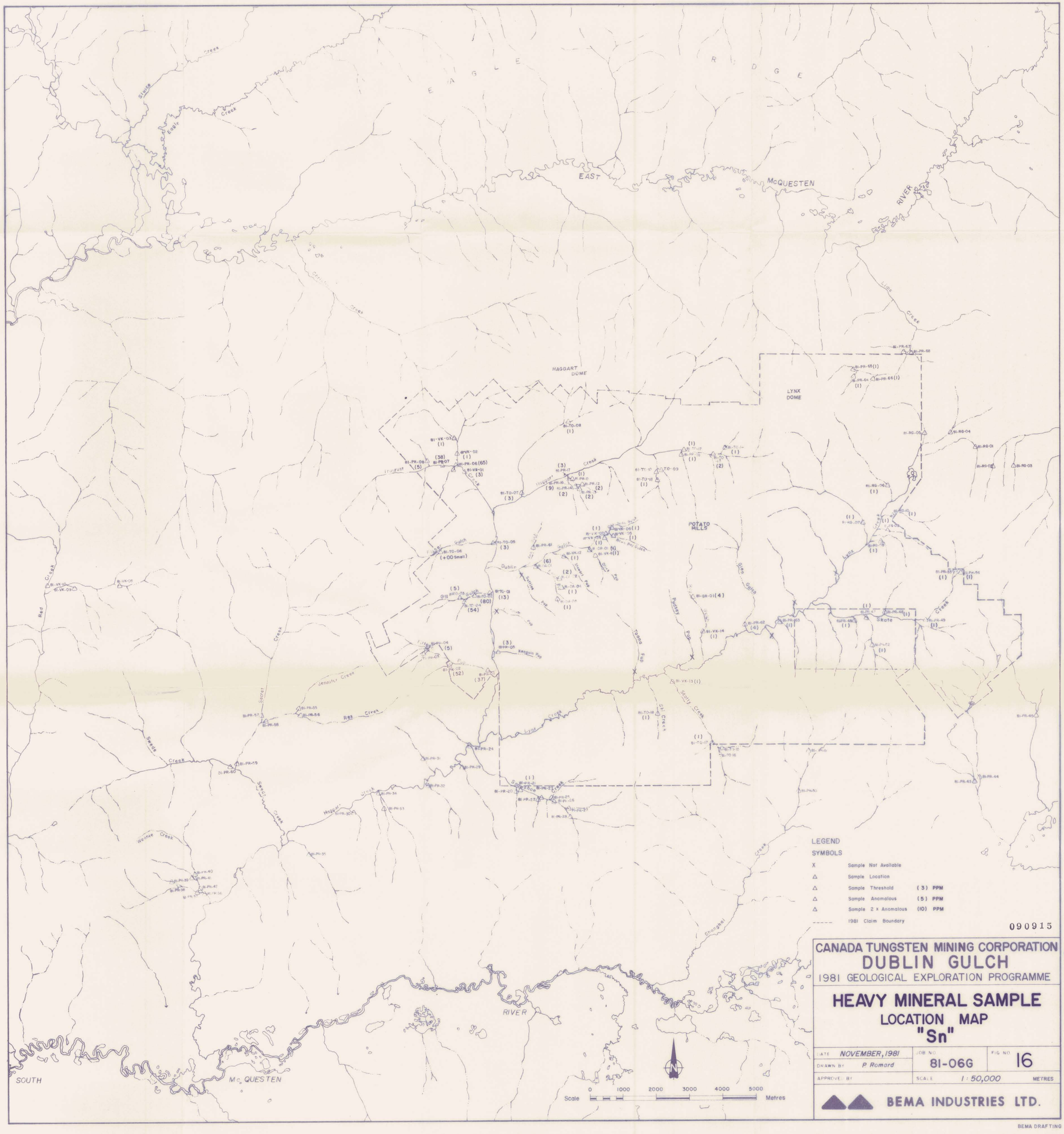
MAYO SILVER MINES
GEOLOGY

DATE	NOVEMBER 1981	JOB NO.	81-06 G
APPROVED BY	G.R.	FIG. NO.	14

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BEMA DRAFTING/JPP


EAGLE RIDGE
EAST
McQUESTEN
RIVER
Sluice Creek
Eagle Creek
Eagle Creek
Carlstia Creek
HAGGART DOME
LYNX DOME
POTATO HILLS
Lime Creek
Dublin Gulch
Fifty Gulch
Red Creek
Secret Creek
Jennifer Creek
Rex Creek
Swede Creek
Weenie Creek
Higgins Creek
Haggart Creek
Lynx Creek
Scotty Creek
Ski Creek
Toona Pup
Pudsey Pup
Glen Gulch
Skate Creek
Shanghai Creek
Keenguin Pup
Platinum Pup
Olive Pup
Stewart Pup
Surprise Pup
Ironhorse Creek
Ironhorse Creek
SOUTH
McQUESTEN
RIVER
Scale 0 1000 2000 3000 4000 5000 Metres
N
LEGEND
SYMBOLS
X Sample Not Available
Sample Location
Sample Threshold (10) PPM
Sample Anomalous (50) PPM
Sample 2 x Anomalous (100) PPM
1981 Claim Boundary
090915
CANADA TUNGSTEN MINING CORPORATION
DUBLIN GULCH
1981 GEOLOGICAL EXPLORATION PROGRAMME
HEAVY MINERAL SAMPLE
LOCATION MAP
"WO3"
DATE NOVEMBER, 1981
JOB NO 81-06G
FIG NO 15
DRAWN BY P Romard
APPROVED BY
SCALE 1:50,000 METRES
BEMA INDUSTRIES LTD.
BEMA DRAFTING



LEGEND

SYMBOLS

X	Sample Not Available	
△	Sample Location	
△	Sample Threshold	(3) PPM
△	Sample Anomalous	(5) PPM
△	Sample 2 x Anomalous	(10) PPM
-----	1981 Claim Boundary	

090915

CANADA TUNGSTEN MINING CORPORATION

DUBLIN GULCH

1981 GEOLOGICAL EXPLORATION PROGRAMME

HEAVY MINERAL SAMPLE

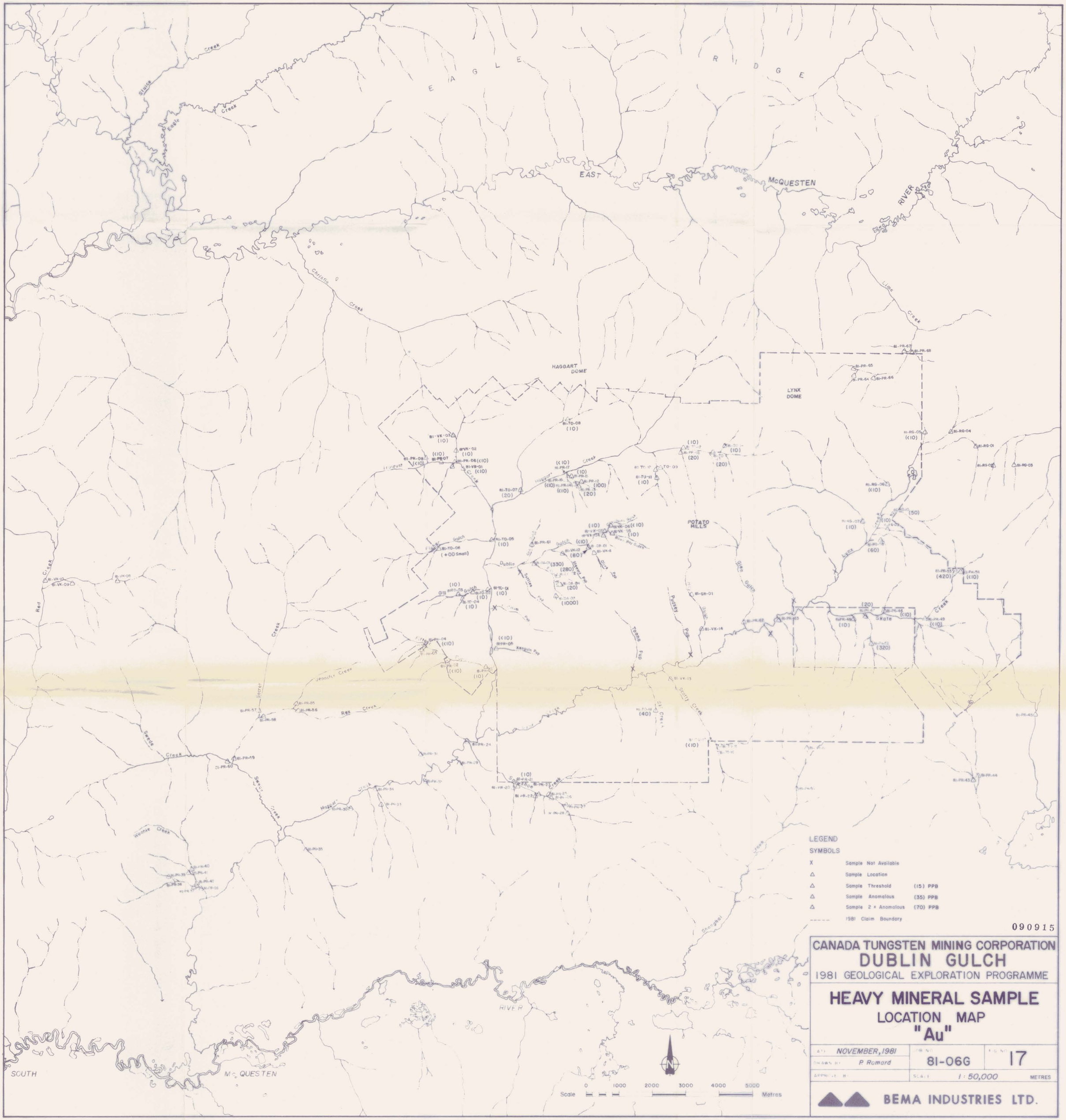
LOCATION MAP

"Sn"

DATE NOVEMBER, 1981	JOB NO 81-06G	FIG NO 16
DRAWN BY P. Romard		
APPROVED BY	SCALE 1:50,000 METRES	

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BEMA DRAFTING


E A G L E
R I D G E
EAST
McQUESTEN
RIVER
Sluice Creek
Unnamed Eagle Creek
Christie Creek
HAGGART DOME
LYNX DOME
POTATO HILLS
Lime Creek
Red Creek
Secret Creek
Swede Creek
Jennifer Creek
Rat Creek
Wennie Creek
Dublin Gulch
Skate Creek
Lynx Creek
Toona Pup
Scary Creek
Shanghai Creek
SOUTH McQUESTEN RIVER
LEGEND
SYMBOLS
X Sample Not Available
Sample Location
Sample Threshold (15) PPB
Sample Anomalous (35) PPB
Sample 2 x Anomalous (70) PPB
1981 Claim Boundary
090915
CANADA TUNGSTEN MINING CORPORATION
DUBLIN GULCH
1981 GEOLOGICAL EXPLORATION PROGRAMME
HEAVY MINERAL SAMPLE
LOCATION MAP
"Au"
DATE NOVEMBER, 1981
DRAWN BY P. Romard
APPROVED BY
JOB NO 81-066
FIG NO 17
SCALE 1:50,000 METRES
Scale 0 1000 2000 3000 4000 5000 Metres
BEMA INDUSTRIES LTD.
BEMA DRAFTING

DUBLIN GULCH
PLACER CAMP

BASE LINE

10+000 N B.L.

458,000 E | 459,000 E | 460,000 E | 461,000 E | 462,000 E | 463,000 E

7,099,000 N | 7,100,000 N | 7,101,000 N

SHEET INDEX

		3	2	1		
	4	5	6	7		
	11	10	9	8		
	12	13				

Scale 0 100 200 300 400 500 Metres

090915

CANADA TUNGSTEN MINING CORPORATION
DUBLIN GULCH Y·T·
1981 GEOLOGICAL EXPLORATION PROGRAMME

DUBLIN GULCH GRID

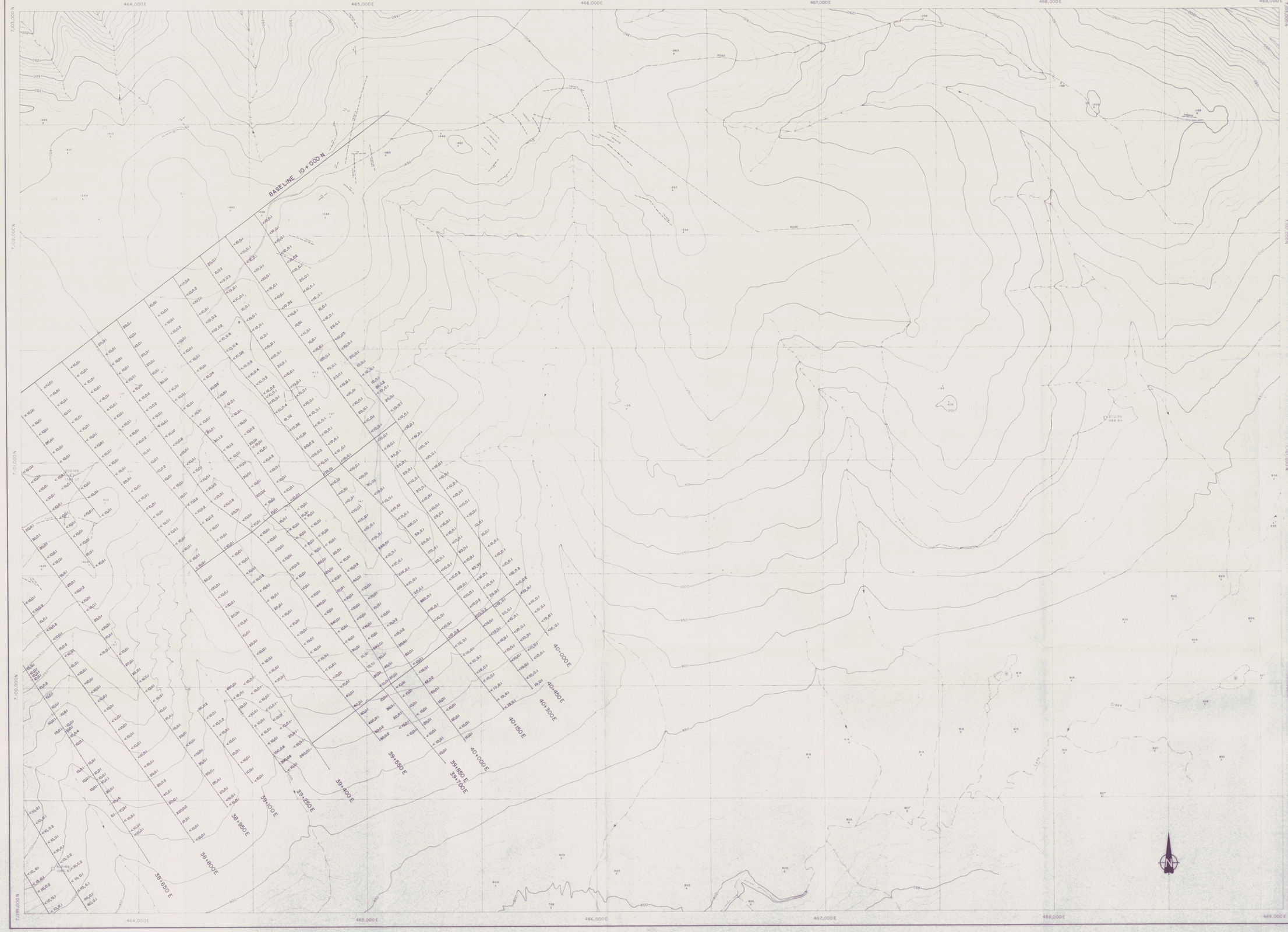
SOIL GEOCHEMISTRY (Au/Ag)

INDEX 6

DATE NOVEMBER 1981	JOB NO 81-06G	FIG NO	18
DRAWN BY MD/			
APPROVED BY	SCALE 1:5,000		METRES

BEMA INDUSTRIES LTD.

BEMA DRAFTING



SHEET INDEX

	3	2	1
4	5	6	7
11	10	9	8
12	13		

Scale 0 50 100 200 300 400 500 Metres

090915

CANADA TUNGSTEN MINING CORPORATION

DUBLIN GULCH Y.T.

1981 GEOLOGICAL EXPLORATION PROGRAMME

RAY GULCH GRID

SOIL GEOCHEMISTRY (Au/Ag)

INDEX 7

DATE: NOVEMBER 1981	JOB NO: 81-06G	FIG NO:	19
DRAWN BY: K.K.T.D			
APPROVED BY:	SCALE: 1:5,000		METRES

BEMA INDUSTRIES LTD.

BEMA DRAFTING



SHEET INDEX

3	2	1
4	5	7
11	10	9	8
12	13	

Scale 0 50 40 60 100 200 300 400 500 Metres

090915

CANADA TUNGSTEN MINING CORPORATION
DUBLIN GULCH Y·T·
1981 GEOLOGICAL EXPLORATION PROGRAMME

DUBLIN GULCH GRID

SOIL GEOCHEMISTRY (Wo3/Sn)

INDEX 6

DATE NOVEMBER 1981	JOB NO 81-066	FIG NO 20
DRAWN BY MU		
APPROVED BY	SCALE 1:5,000	METRES

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BEMA DRAFTING

464,000E 465,000E 466,000E 467,000E 468,000E 469,000E

7,103,000N 7,102,000N 7,101,000N 7,100,000N 7,099,000N

10,000N BL

9,000N BL

ROAD

Creek

Gulch

Scale 0 20 40 80 100 200 300 400 500 Metres

SHEET INDEX

090915

CANADA TUNGSTEN MINING CORPORATION

DUBLIN GULCH Y. T.

1981 GEOLOGICAL EXPLORATION PROGRAMME

RAY GULCH GRID

SOIL GEOCHEMISTRY (Wo3/Sn)

INDEX 7

DATE NOVEMBER 1981	JOB NO. 81-06G	FIG NO. 21
DRAWN BY T. Dhani	SCALE 1:5,000	METRES
APPROVED BY		

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BEMA DRAFTING