THE GEOLOGY OF CABIN CLAIMS 124 - 137

Latitude 63°43' Longitude 131°28'

NTS 105-0-11, MAYO MINING DISTRICT

YUKON TERRITORY

Report Submitted for Assessment Credit
D. H. James
Union Carbide Exploration Corporation
Vancouver, B. C.
November, 1982

091404

This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is recommended as representation work in the amount of $ 4,200.—

P. Watson

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

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I. INTRODUCTION

1.1 General

During the years 1971 - 1976 several grass roots exploration programs were conducted in the Niddery Lake area (NTS 105 - O), Yukon. At that time stream concentrates were analysed primarily for WO_3 and Cu. In the first quarter of 1981 the stored samples from selected areas within the Niddery Lake area were re-analysed for gold, silver, molybdenum and arsenic and a number of sites anomalous in these elements were recognised. A small low-key, low budget prospecting program was instituted for the summer of 1981 to follow-up the anomalous gold and silver stream geochemistry.

The majority of the regional geochemical stream concentrate anomalies came from an area near the small Old Cabin granodiorite pluton. A camp was established at Old Cabin with 5 weeks work planned. The prospecting and follow-up sampling program was carried out with limited helicopter support. During the 5 weeks at Old Cabin 525 stream sediment samples (concentrates and silts) and 400 rock chip samples were collected and sent to Vancouver for geochemical analysis. The results indicated that arsenopyrite veins from the Old Cabin area were enriched in gold with a number of values in the range 4000-8000 ppb Au.

On the basis of these results it was decided to stake the property. Initially 123 claims were staked as the CABIN claims on the 26 - 27 July. With the availability of further geochemical results 62 OLD claims were added on 12 - 13 August, 1981.

In 1982 these claims were mapped at 1:10,000 scale on orthophotographs and contour base maps produced by Pacific Survey Corporation of Vancouver. The purpose of the mapping was to locate all veins and relate them to a specific geological environment. During the mapping program it became obvious that the western half of Blackpoll Peak should have been included in the original claim block. Consequently an additional 14 claims were staked on the 4th August, 1982 and registered in Mayo on the 19th August. The claims were mapped by D. H. James on the 22nd and 23rd August and the geology tied into the mapping completed earlier in the season on the adjacent claims.

1.2 Location

CABIN 124-137 claims are centered about latitude 63°43'N and longitude 131°28'W in the Mayo Mining District of the Yukon Territory. The claim group is situated in mountainous terrain in a fork between the Old Cabin and Rogue Rivers. The nearest road is the Canol Road passing through MacMillan Pass about 87 km to the southeast.

1.3 Access

Access to the property is hampered by extremely rugged terrain. Fixed-wing float planes can land either at Arrowhead Lake (16 km to the east) or Emerald Lake (20 km to the southeast). From these lakes access is by helicopter. Contract helicopters are also available from MacMillan Pass which is served by a schedule air service out of Whitehorse. MacMillan Pass is connected to Ross River by the all-weather Canol Road.

1.4 Topography

The property lies within the Hess Mountains, just north of the Rogue Range. Topographic relief is spectacular and varies between 1,000 m and 2,100 m AMSL. The claims are all situated above the tree line.

1.5 Climate

The combination of steep terrain and elevation results in a majority of the property being snow covered from early September until late June. During the two short summer months daily weather conditions can be extremely variable, ranging from cool, wet conditions with occasional snowfalls to warm dry weather. Winter snowfall normally exceeds 3 metres and annual temperatures vary from a low near minus forty to highs approaching twenty-five (Celsius).

1.6 Logistics

The 1982 program was conducted from a camp on the property with helicopter support operating from Emerald Lake (20 km to the southeast). The helicopter was used for mobilization, daily setouts and pickups. A fuel cache for helicopter usage was located at Emerald Lake. The camp was demobilized on the 25th August, 1982.

1.7 Claims

CABIN claims 124-137 were staked by Union Carbide personnel on the 4th August and registered in Mayo on the 19th August. This report supports an application for assessment credit which will hold the claims valid to 10th August, 1986.

Claims	Registration Number	Date Registered	NTS	Acres
CABIN 124-	YA76728 -	19th August 1982	105-0-11	723.1
CABIN 137	YA76741			

2. GEOLOGY OF CABIN CLAIMS 124-137

2.1 Previous Geological Mapping

Previous geological mapping in the area indicated a Cretaceous granodiorite intrusive into a sequence comprising predominantly Hadrynian and Cambrian green and red shales with dark green and brown basic volcanic and volcaniclastic rocks (see Open File 205, June 1974, G.S.C. Ottawa).

2.2 General Introduction

The primary purpose of the 1982 program was to map the property at 1:10,000 scale, locate all veins and relate them to a specific geological environment. To this purpose a contour base map and orthophoto were produced by Pacific Survey Corporation of Vancouver. The completed geological map will be used as a basis for future soil sampling grids and geophysical surveys. Mapping on the property was conducted by D. H. James

2.3 Stratigraphic Description

The stratigraphy of the claim block, as established by mapping (Map 1) is as follows:

Mid-Cretaceous	Granodiorite pluton and satellite stocks.
Mid-Ordovician to Silurian(?)	Intermediate to alkalic volcanics; lava flows, lapilli tuffs and volcanic breccias. Mafic dykes and sills.

Ordovician - Silurian	Cherts with minor intercalated shales, argillites and dolomites.
Lower Cambrian	Argillites, local black shales, grading upwards to fine - to medium - grained quartzites.
Hadrynian and Lower Cambrian	"Grit Unit" maroon and green shales.

Mapping concentrated on those units intruded by granodiorite and overlying the Grit Unit. Shales of the Grit Unit invariably occupy the lower debris filled valleys or underlie gentle grass-covered slopes.

a. Hadrynian to Lower Cambrian Grit Unit

The dominant lithology of the Grit Unit is made up of maroon shales with minor interbedded green shales, brown-weathering shales and argillites and occasional coarse-grained feldspathic quartzites, grit and conglomerate. Outcrop is usually confined to smooth rounded grass-covered slopes and debris filled valley floors. Good exposures are rare and are usually found only in deeply eroded stream ravines. Recessive weathering shales invariably obscure all contact relationships. The rare exposures indicate a long and complex structural history. Pervasive cleavage of several periods of folding have aided the disintegration of the outcrop.

b. Lower Cambrian

The Lower Cambrian succession overlying the Grit Unit comprises rusty red-brown weathering argillites with interbedded quartzite and shales. Shale interbeds are more common lower down in the sequence

which grades upwards into quartzites and argillites. Fresh surfaces of the finer grained clastics in this vicinity are cream to buff coloured. Quartzites are buff to glassy. Recrystallization of constituent minerals (quartz and fine mica) in the quartzites causes bedding and foliation surfaces to glisten in the sunlight. Manganese staining appears to favour the quartzitic members.

The contact between this largely argillite succession and the Grit Unit is transitional. Pervasive cleavage destroys the contact relationships. No specific band has been chosen to represent the boundary. The lower contact is usually mapped as the first appearance of a dominantly maroon or dark purple shale assemblage.

c. Ordovician to Silurian

An Ordovician to Silurian chert succession overlies the transition phase Lower Cambrian argillites and quartzites. Brown weathering intercalated argillites and cherts, with minor limey lenses, lie at the base of the succession. These give way upwards to massive bands of green chert (individual bands up to 20 cm) to rhythmically cm-thick banded black and white cherts. Fine-grained black dolomites may form a small intercalated fraction of this assemblage, to be replaced by shales in the upper part of the sequence. Silver weathering black shales and brown weathering green-grey shales in the upper part of this unit yield Silurian fossil graptolites.

d. Mid-Ordovician to Silurian Volcanic Assemblage

The volcanic assemblage comprises a variety of rock types ranging from volcanic breccias, lithic and lapilli tuffs and lava flows with features that suggest both coeval deposition with the sediments as well as crosscutting relationships indicative of the intrusion.

The volcanics lowermost in the succession lie close to the upper contact of the Grit Unit and within the argillites. They are massive equigranular lava flows resistant to weathering and forming blocky rusty to orange weathering outcrops. The weathered surface is composed of calcite and limonite. The fresh rock is light grey, equigranular with rare calcite filled amygdales and minor disseminated sulphides (mostly pyrite). Vesicular lava flows or flow top breccias can be associated with local sedimentation and thin, basic lava flows. At the Baffle Showing these lavas appear to have suffered post-depositional brecciation and alteration, the fragments altered to kaolinite. The interfragmentary matrix is hematite-rich clay material imparting a maroon to red colour to the outcrop. Hydrothermal alteration has resulted in creamy orange outcrops where the entire rock has altered to kaolinite and limonite.

The volcanic assemblage within the chert succession is fresher in appearance. Most outcrops weather to a rough pitted, almost scoriaceous, grey surface. A characteristic of this part of the volcanic assemblage is the appearance of chert fragments in the pyroclastics suggestive of syn - or post-depositional eruptive activity in the chert basin. Chert and other lithic fragments occur within the individual flow units. Volcanic fragments range from bomb to lapilli sizes and are always angular. Green vesicular lavas, and fragmented vesicular lavas are particularly rich in calcite as interfragment vesicle fillings.

Mafic to ultramafic sills and dykes outcrop sporadically. Composition ranges from dark fine-grained diorite to medium-grained diabase.

3. BAFFLE SHOWING, ALTERATION AND MINERALIZATION.

The Baffle Showing, discovered during 1982 mapping, outcrops on the Western ridge of Blackpoll Peak. The upper slopes of the peak are underlain by chert with intercalated pyroclastic flows and intrusive diorite sills. Halfway down the ridge this unit is truncated by a fault. West of the fault volcanics in the transition argillites and shales have been intensely altered. Remnant volcaniclastic features can still be recognised in some of the partially altered, hematitic volcanics. The extreme of alteration is represented by soft-weathering rubbly exposures of massive spongy and earthy limonite stained kaolinite. Skeletal limonite attests to an earlier generation of sulphide concentration. Silica flooding surrounds tiny barren quartz veinlets. Silica also fills a variety of irregular shaped open spaces with amorphous chalcedonic quartz or inwardly directed clear quartz crystals.

Sulphide-bearing veins at the Baffle Showing appear as a younger vein generation post-dating the hydrothermal alteration. They cut across the alteration zones haphazardly both in a vertical and horizontal sense. Arsenopyrite and galena are the dominant sulphides. Arsenopyrite has commonly oxidised to secondary yellow-green scorodite. The proportion of galena present in the veins at the Baffle Showing is an order of magnitude greater than that observed in any of the previously reported veins on the property. The gangue material is vuggy vein quartz.

Weakly mineralized vein specimens from the Baffle Showing yielded the following high values:

gold - 2.88ppm

silver - 41.0ppm

arsenic - 1.75%

lead - 4.79%

These do not represent a single sample but are selected high values from some of the samples selected for assay.

The intensely altered rocks appear to be confined to a northerly trending zone. Alteration is not consistently intense along the entire length of this zone, though different lithologies with different response to alteration are partially responsible for this phenomenon. The alteration zone has been in part structurally controlled, the hydrothermal fluids having exploited previously prepared cataclastic zones.

4. CONCLUSIONS AND RECOMMENDATIONS.

The sequence of events relating to alteration and vein mineralization is envisaged as follows:

- Block faulting to accommodate the emplacement of the Old Cabin pluton. Small step faults between uplifted blocks may have been reactivated later during cooling and shrinking of the pluton. Differential movement and subsequent development of cataclastic zones would be irregular and controlled essentially by the "topography" of the underlying pluton.
- Hydrothermal fluids emanating from the pluton would preferentially exploit cataclastically prepared zones between fault blocks. Hydrothermal solutions would be funnelled up through these zones thus localizing intense alteration now represented by those showings where the host rocks have been entirely altered to kaolinite. Surrounding these zones only those wallrocks particularly susceptible to alteration would be affected and the influence would decrease rapidly outwards and with elevation above source. This weaker alteration is represented by the hematitic maroon-brown altered volcanics surrounding the alteration zones and developed in the lower part of the volcanic sequence. Minor silica and sulphide mineralization appear to have been associated with this event.
- Small auriferous arsenopyrite-pyrite and argentiferous galena-arsenopyrite veins utilize the softer hydrothermally altered zones for intrusion and also cut into the surrounding rocks.

The best target area therefore would be where the younger veins are concentrated during their upward progression into narrow hydrothermally altered zones as might exist in the maroon shales of the Grit Unit.

Further exploration should concentrate on detecting narrow bonanza-type mineralization in shales of the Grit Unit. Economic mineralizaion would have to contain sufficient sulphide to be detected by most electromagnetic geophysical methods. It is therefore recommended that a tightly controlled detailed E.M. survey be conducted across projections of the fault-bounded zone. The contract should be awarded to a competent and professional operator who is fully aware of the narrow target being sought. Promising geophysical targets should be drilled.

The property should be allowed to lapse if no geophysical anomalies can be outlined with confidence.

D. H. James
Senior Geologist
December, 1982

STATEMENT OF QUALIFICATIONS

I, Dereck H. James, do hereby certify that:-

1. I am a professional geologist employed by Union Carbide Exploration Corporation.

2. I hold the following graduate degrees:-

   a) B.Sc (Eng.) Mining Geology - University of the Witwatersrand, Johannesburg, South Africa.

   b) M.Sc. Mineral Exploration - Royal School of Mines, University of London, England.

3. I have practiced my profession continuously since graduation while being employed by O'Okiep Copper Company, Nababeep, South Africa (1971 - 1976) and Union Carbide Exploration Corporation both in South Africa and Canada (1976 - present)

4. I am a member in good standing of:

   The Institution of Mining and Metallurgy, England
   The Canadian Institution of Mining and Metallurgy
   The Geological Society of South Africa

August 1982
Vancouver, B.C.

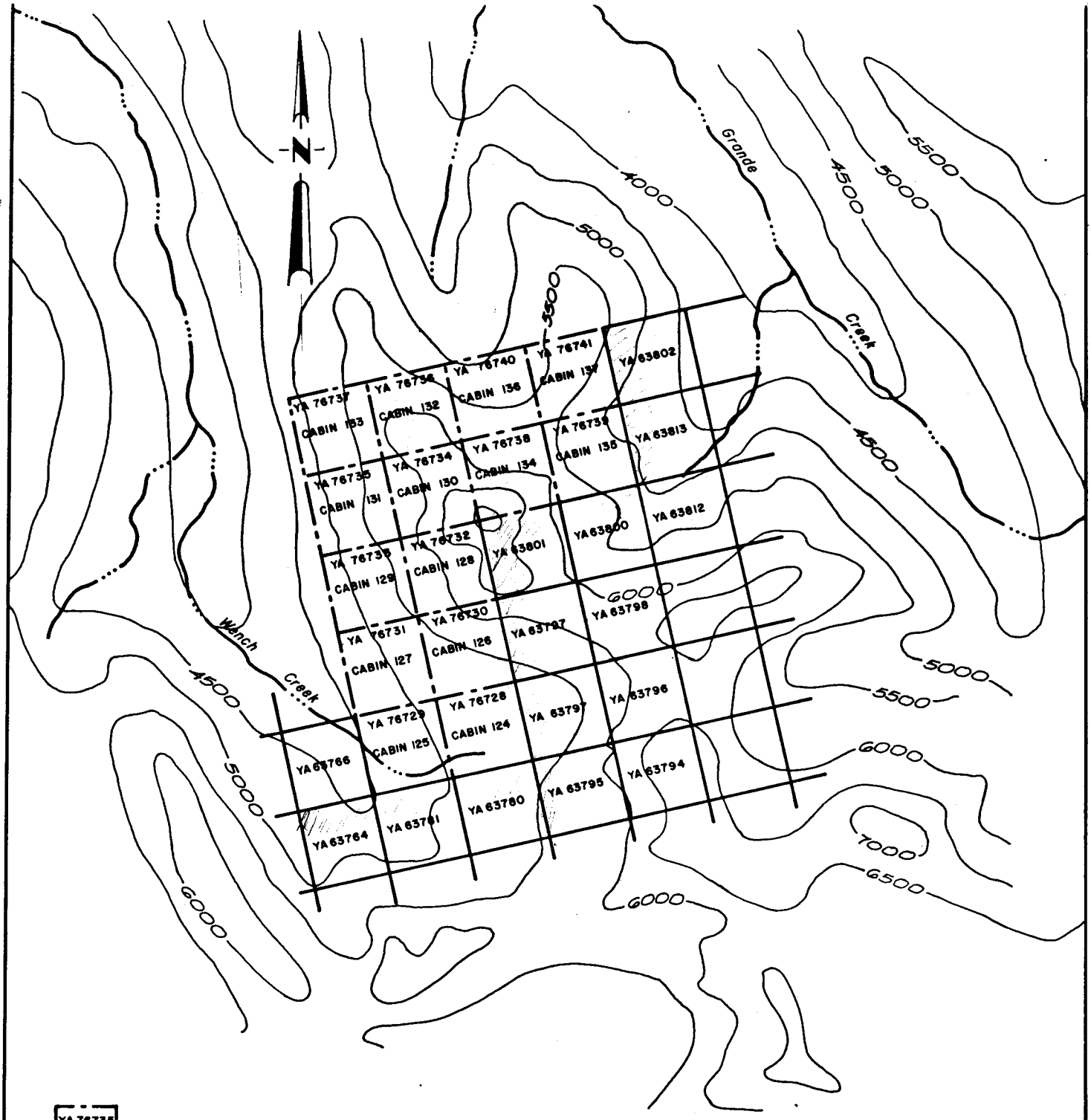
D. H. James

CABIN CLAIMS 124-137 August 20-25, 1982

SUMMARY OF COSTS

Helicopter 22 August	$ 450.00	
23 August	565.00	$1,015.00
Senior geologist and junior geologist:		
$190 per day x 5 days		950.00
Board and lodging:		
$30 x 2 men x 5 days		300.00
Demobilization of camp:		
Helicopter 25 August	$1,170.00	
Fixed Wing	3,185.15	4,355.15
	Total	$ 6,620.15

Invoices attached.



YA 76735
CABIN 131 NEW CABIN CLAIMS

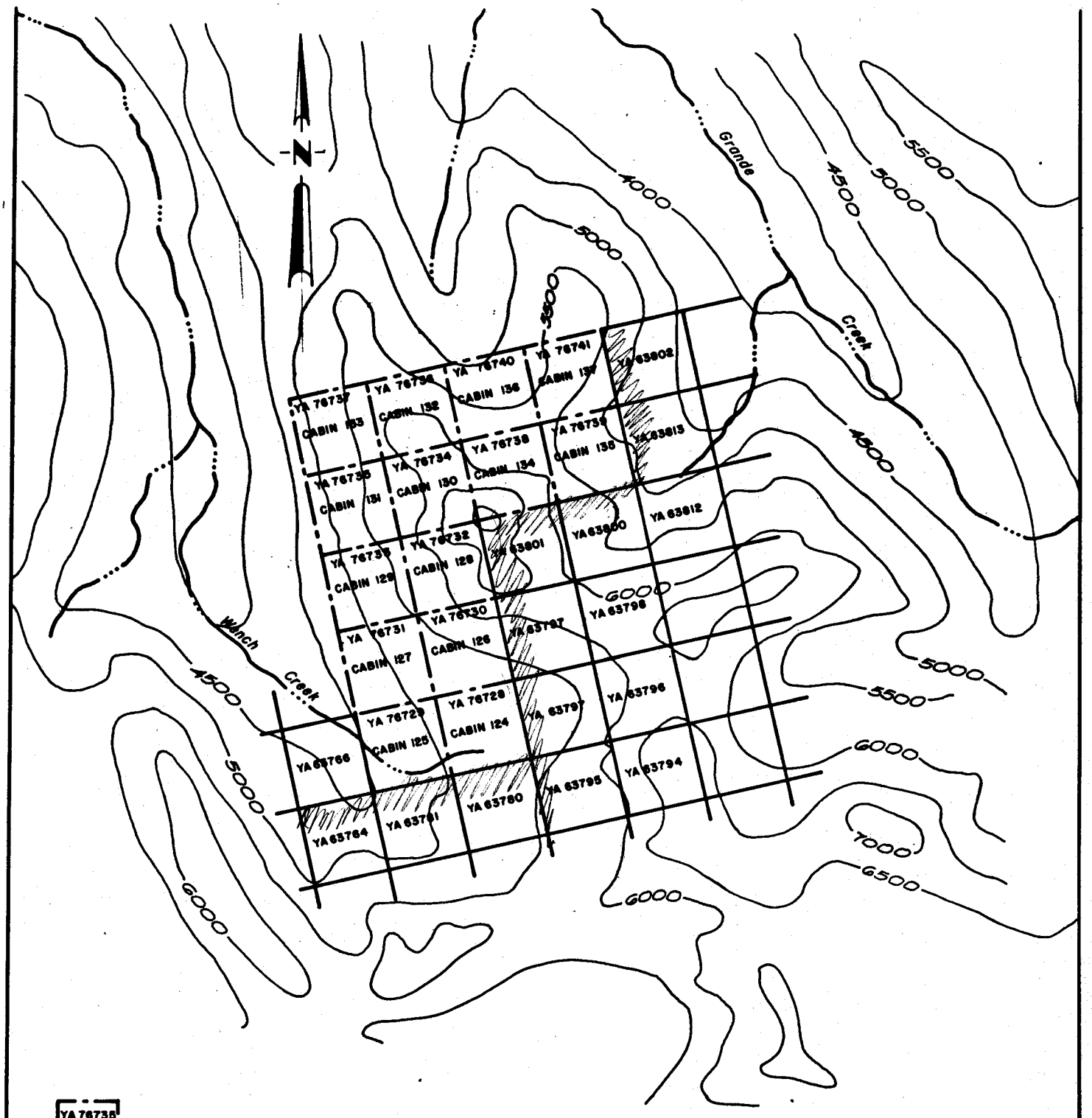
YA63801 EXISTING CABIN CLAIMS

CONTOUR INTERVAL : 500 Feet

UNION CARBIDE UNION CARBIDE EXPLORATION CORPORATION

OLD CABIN CLAIMS
ADDITIONAL STAKING
YUKON TERRITORY

COMPILED BY: D.H. James		MAP NO:
DRAFTED BY: K.C. Gibson	DATE: August, 1982	SCALE: 1 inch = 1/2 mile
DISPOSITION:		NTS: 105-O-11
PROJECT NO:	REPORT NO:	



YA 76735 CABIN 131 — NEW CABIN CLAIMS

YA63801 — EXISTING CABIN CLAIMS

CONTOUR INTERVAL : 500 Feet

UNION CARBIDE — UNION CARBIDE EXPLORATION CORPORATION

OLD CABIN CLAIMS
ADDITIONAL STAKING
YUKON TERRITORY

COMPILED BY: D.H. James		MAP NO:
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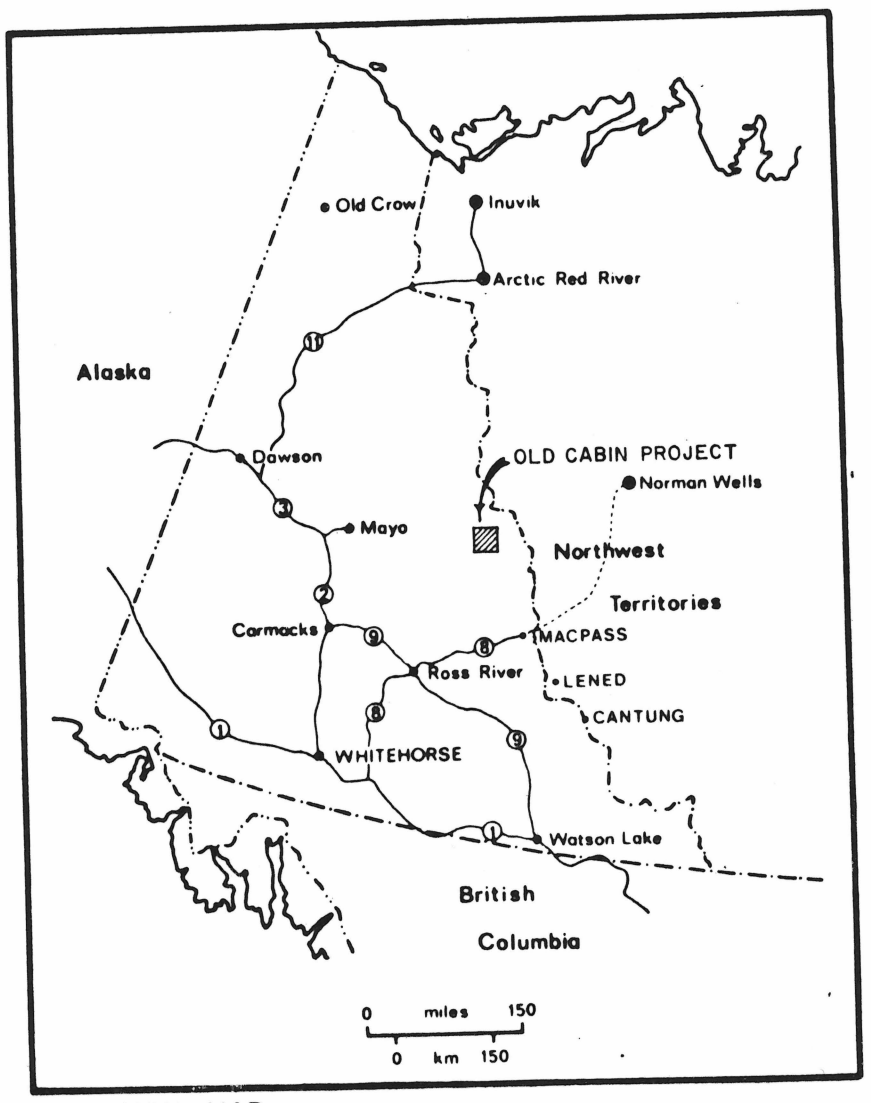


LOCATION MAP

LEGEND

MID CRETACEOUS

10	ALASKITE DYKES AND SILLS
9	GRANODIORITE
8	HORNFELSED SEDIMENTS

MID ORDOVICIAN TO SILURIAN (?)

7	ULTRAMAFIC DYKES AND SILLS
6·c	BASALT / ANDESITE FLOWS AND PYROCLASTICS
6·b	VOLCANICS: LAVA FLOWS, BRECCIAS, LITHIC TUFFS, PILLOW LAVAS, MINOR VOLCANIC SEDIMENTS
6·a	VOLCANICS AND VOLCANICLASTICS - HIGHLY ALTERED TO KAOLIN AND HEMATITE, SULPHIDE RICH LENSES.

SILURIAN

5	MAROON AND GREEN SHALES.

ORDOVICIAN TO SILURIAN

4	RHYTHMICALLY BANDED CHERTS (BLACK AND WHITE, GREEN) MINOR ARGILLITES AND GRAPTOLITIC SHALES, MINOR LIMESTONES

LOWER CAMBRIAN

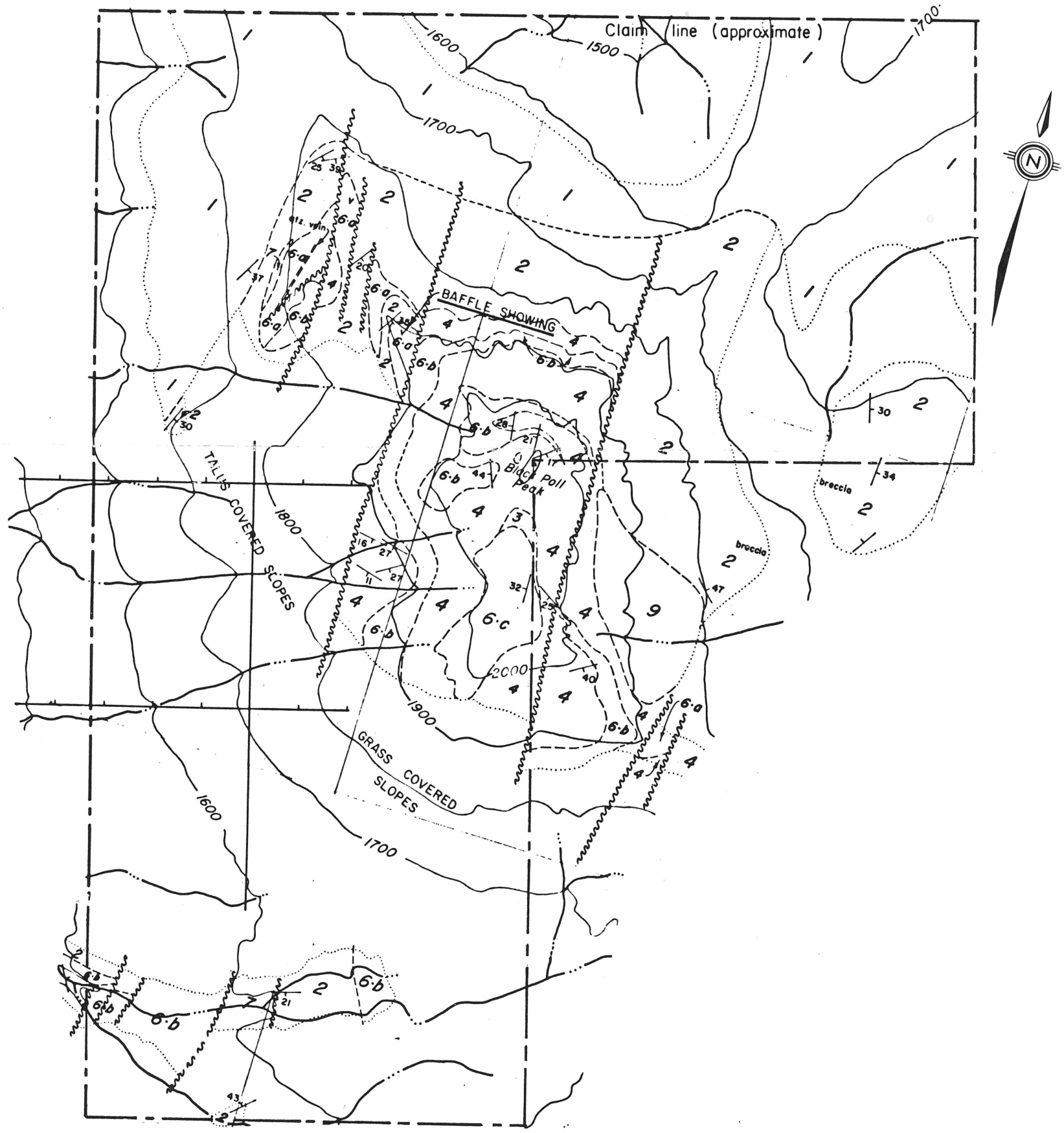
3	BLACK SHALES
2	BROWN WEATHERING SHALES, ARGILLITES, CREAM SHALES AND GLISTENING QUARTZITES

HADRYNIAN AND LOWER CAMBRIAN

1	"GRIT UNIT" MAROON SHALES, GREEN SHALES, MINOR GRIT BANDS, QUARTZITES

SYMBOLS

- GEOLOGICAL CONTACT; (approximate, assumed)
- AREA OF OUTCROP
- BEDDING; (inclined, vertical, horizontal)
- FOLIATION; (inclined, vertical)
- JOINTING; (inclined, vertical)
- ANTICLINE, SYNCLINE AXIS
- FAULTING; (defined, approximate)
- PYRITE, ARSENOPYRITE VEINS
- CALCITE, QUARTZ VEINS
- CLAIM BOUNDARY
- LIMIT OF MAPPING



SCALE IN METRES

500 400 300 200 100 0 500 1000

091401

091404

UNION CARBIDE

UNION CARBIDE EXPLORATION CORPORATION

OLD CABIN CLAIMS

GEOLOGY

YUKON TERRITORY

COMPILED BY: D.H. James		MAP NO: 1
DRAFTED BY: K.C. Gibson	DATE: November, 1982	SCALE: 1 : 10,000 m
DISPOSITION:		NTS: 105-O-11/12
PROJECT NO: 105	REPORT NO:	