



SECTION #I  
GEOLOGICAL REPORT

and

1982 PROSPECTING PROGRAMME  
YUKON QUARTZ MINERAL CLAIMS  
BEAR CLAIM GROUP

LATITUDE 60°57.5'N - LONGITUDE 133°43'W

and

GRIZZLY CLAIM GROUP  
LATITUDE 60°59.3'N - LONGITUDE 133°48.5'W

RED MOUNTAIN CREEK AREA  
NTS SHEET 105-C-13  
WHITEHORSE MINING DISTRICT - Y.T.

for

WESTFORT PETROLEUMS LTD. et al  
SAWTOOTH PROJECT  
CALGARY, ALBERTA

by

R. G. HILKER, P. ENG.  
AURUN MINES LTD.  
CALGARY, ALBERTA  
SEPTEMBER 14, 1982

091380



This report has been prepared by  
the Geological Evaluation  
under Section 53 (4) Yukon Quartz  
Mining Act and is allowed as  
representation work in the amount  
of \$ 12,600.

*P. Watson*

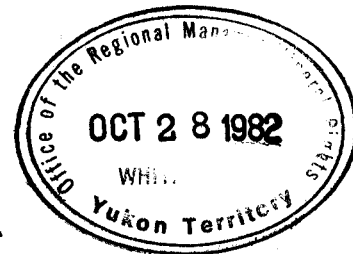
Regional Manager, Exploration and  
Geological Services for Commissioner  
of Yukon Territory.



AFFIDAVIT OF EXPENDITURE

I, S. B. GIENI, accountant for Aurun Mines Ltd., do hereby certify that a minimum of \$8,600.00 was spent on the Bear Claim Group during July 16th to July 30th, 1982;

Bear # 1 - 8 YA60161-168  
Bear # 9 - 16 YA60274-281  
Bear #17 - 24 YA60169-176  
Bear #25 - 32 YA60177-184  
Bear #33 - 40 YA61255-262  
Bear #41 - 48 YA60185-192  
Bear #49 - 56 YA60193-200



THE BEAR CLAIM GROUP is located on NTS Sheet #105-C-13 and is within the Whitehorse Mining District.

AURUN MINES LTD. accounting records are located at the company offices; #910 - 640 - 8th Avenue S.W., Calgary, Alberta.

DATED at the City of CALGARY in the Province of ALBERTA this 20<sup>th</sup> day of OCTOBER, 1982.

NOTARY PUBLIC in and for the  
Province of Alberta

JAMES W. OWEN

My appointment expires on the  
31st day of December, 1983.

S. B. GIENI  
ACCOUNTANT

091380

AFFIDAVIT OF EXPENDITURE

I, S. B. GIENI, accountant for Aurun Mines Ltd., do hereby certify that a minimum of \$4,300.00 was spent on the Grizzly Claim Group during July 16th to July 30th, 1982;

Grizzly #33 - 40 YA60121-128

Grizzly #41 - 44 YA60129-132

Grizzly #65 - 72 YA61263-270

Grizzly #73 - 80 YA73846-853

THE GRIZZLY CLAIM GROUP is located on NTS Sheet #105-C-13 and is within the Whitehorse Mining District.

AURUN MINES LTD. accounting records are located at the company offices; #910 - 640 - 8th Avenue S.W., Calgary, Alberta.

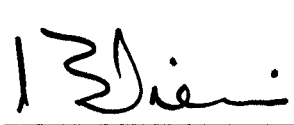
DATED at the City of CALGARY in the Province of ALBERTA this 20th day of OCTOBER, 1982.



NOTARY PUBLIC *in and for the*

JAMES W. OWEN

*Province of Alberta.*



S. B. GIENI  
ACCOUNTANT

My appointment expires on the  
31st day of December, 1983.

Bear/Grizzly Claim Group  
1982 Geological Property Expenditures  
Red Mtn. Area - Sheet 105-C-13  
Whitehorse Mining District - Y.T.

The 1982 geological programme costs are pro-rated between 56 Bear claims and 28 Grizzly claims for a total of 84 claims in the two non-contiguous groups. Total 1982 expenditure of \$12,900.00 (see Summary Costs).

Bear Group - (56 claims)

Costs -  $56/84 \times \$12,900 = \underline{\$8,600.00.}$

Grizzly Group - (28 claims)

Costs -  $28/84 \times \$12,900 = \underline{\$4,300.00.}$

WESTFORT PETROLEUMS LTD., ET AL  
 SAWTOOTH PROJECT  
 BEAR/GRIZZLY CLAIM GROUPS  
 NTS SHEET 105-C-13

Whitehorse Mining District, Y.T.

Summary of Prospecting Costs

Field Programme (July 16-30/1982)

- Bear Claim Group (56 claims) July 21-25/1982
- Grizzly Claim Group (28 claims) July 26-29/1982
- Total Property Time Interval (84 claims) July 16-30/1982

	<u>Costs</u>
1. Prospector's Labour -----	\$ 2,500.00
- G. K. Isaac (July 16-30) -----	\$1,500
- N.R. Fraser (July 21-30) -----	<u>1,000</u>
2. Supervision and Geology -----	2,800.00
- R. G. Hilker (July 20-30) -----	\$2,200
- R. G. Hilker (July 21 and 25) -----	<u>600</u>
3. Fixed Wing Flying -----	319.90
- Alkan Air Invoice #2522 - July 21/82 ---	\$ 159.95
- Alkan Air Invoice #2534 - July 29/82 ---	<u>159.95</u>
4. Rotary Blade Flying -----	2,224.09
- TNA Invoice #62487 - July 21/82 -----	\$ 705.20
- TNA Invoice #62703 - July 25/82 -----	813.69
- TNA Invoice #62708 - July 29/82 -----	<u>705.20</u>
5. Camp and Related Costs -----	1,800.00
- Bear Claim Group - 10 man days -----	\$1,000
- Grizzly Claim Group - 8 man days -----	<u>800</u>
6. Radio Communications -----	100.00
- Total North Communications #6827	
7. Field Equipment and Supplies -----	500.00
8. Geology Report -----	2,675.00
- Sinclair Drafting (July 23) -----	\$ 175
- Aurun Mines (R G. Hilker) -----	<u>2,500</u>
 Total Cost - 1982 Prospecting and Geology Report -----	 <u>\$12,918.99</u>

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## INTRODUCTION - GENERAL

A large reddish-yellow-to-brown gossan zone occurs on Red Mountain near the head of Slate Creek and north of Red Mountain Creek, Sheet 105-C-13 in the Yukon Territory. The gossan zone was first reported in Memoir 203 - Geological Survey of Canada - in 1931-1935 by E. J. Lees. The gossan zone is caused by approximately 20% pyrite within a schist, gneiss, hornfels, amphibolite, diorite and granitic rock assemblage that is intruded by andesite and rhyolite plugs.

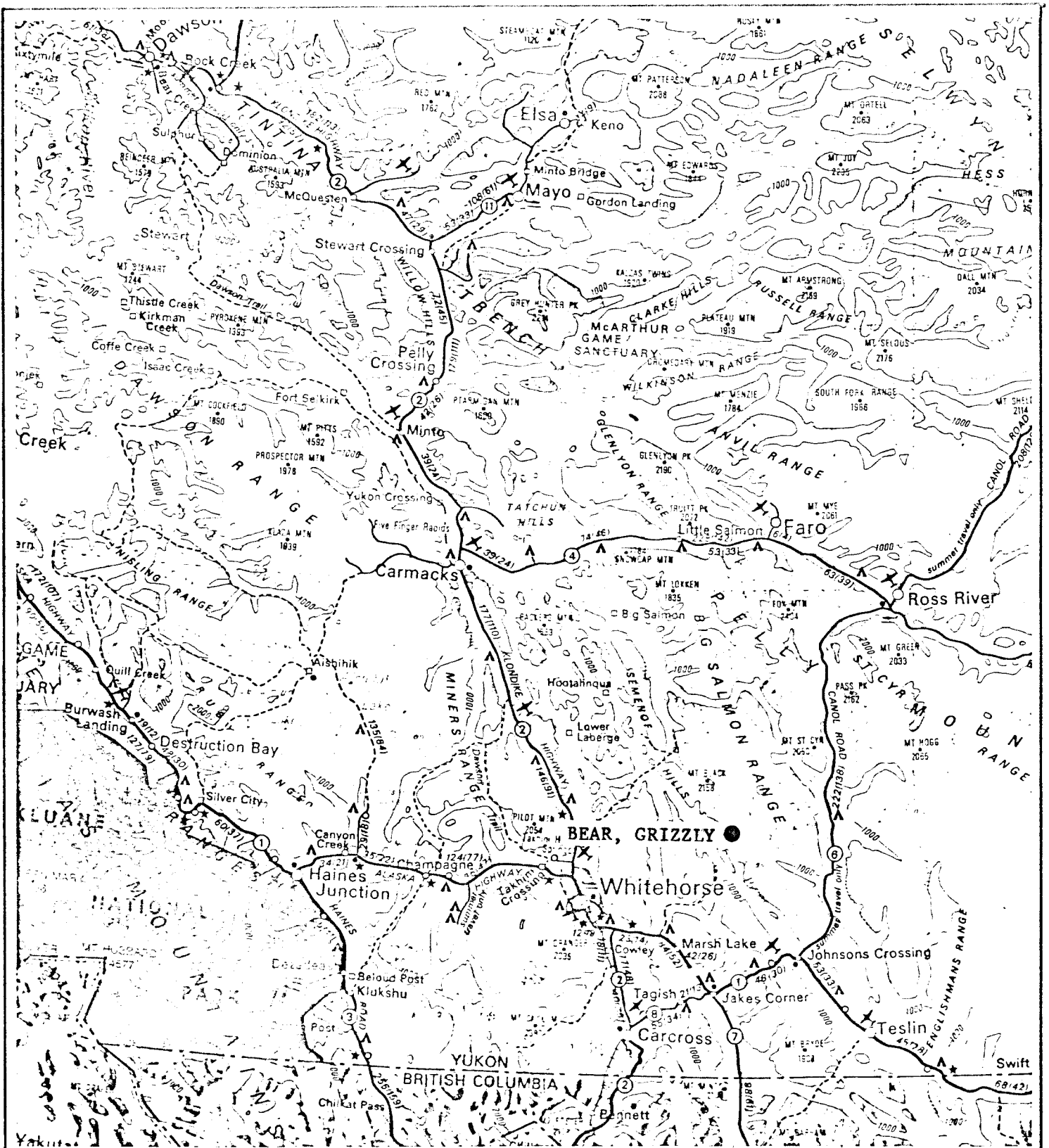
In 1968 Boswell River Mines Limited discovered molybdenite mineralization on Red Mountain, using a geochemical survey conducted by Barringer Research. A molybdenum soil anomaly was delineated, 6000 feet long and 3000 feet wide, on the Red Mountain gossan. The molybdenum determinations ranged from 20 PPM to 100 PPM with highs of 400 PPM with a background from 2 to 4 PPM. Halo zones of lead, silver and iron occurred outside the periphery of the molybdenum anomaly. Copper determinations indicate that some copper is associated with the molybdenum. In 1969 Boswell River Mines conducted a diamond drill programme over a limited area in 16 drill holes. The programme was conducted over the western portion of the geochemical molybdenum anomaly with values of 0.053% to 0.133% MoS<sub>2</sub> reported.

In 1976 Tintina Silver Mines and Amoco Canada Petroleum acquired the Red Mountain property and have conducted exploration and drilling on the gossan zone. The companies have released ore reserve calculations in the December 10, 1981 issue of the Northern Miner to indicate a substantial underground molybdenite ore body.

The Bear and Grizzly claim groups were staked in April, May, and August 1981 near Slate Mountain, Sheet 105-C-13. The claims are located south and southwest of the Amoco/Tintina Silver Mines - Red Mountain molybdenite property. During August of 1981 a geochemistry survey was conducted on the Bear and Grizzly claim groups. Mr. A. S. Denton - Consulting Geologist prepared a geochemistry and evaluation report, on the claim groups, dated March 25, 1982.

The geochemistry report and related survey expenses were submitted to the Whitehorse Mining recorders for assessment work purposes on the claim groups. The application for assessment work was filed for approximately one and one half years and to a "common anniversary" date for the claims. A "Certificate of Work" was issued by the Whitehorse Mining recorder and the claims anniversary dates were advanced to November 19, 1983

During the last two weeks of July 1982 a general prospecting programme was conducted on the property. This geological report on the Bear and Grizzly claim groups is to further evaluate the property in relationship to the Red Mountain molybdenite prospect.



**WESTFORT PETROLEUMS LTD.**

# YUKON MINERAL CLAIMS

Claims in Whitehorse Mining District

Scale: 1:2,000,000

Date: FEB 1982

Plate: 1

1982 Prospecting Programme

The following listed personnel were on the Bear and Grizzly claim groups for the purpose of field work on the dates listed:

Campsite #1 - Bear Claim Group (July 21-25/1982)

Campsite #2 - Grizzly Claim Group (July 26-29/1982)

- |    |                     |  |  |                              |
|----|---------------------|--|--|------------------------------|
| 1. | <u>G. R. Isaac</u>  | - Prospector<br>(Project Work)                 | 14 Firth Street<br>Whitehorse, Y.T.                | July 21-29<br>(July 16-30)   |
| 2. | <u>N. R. Fraser</u> | - Prospector<br>(Project Work)                 | #307B-93 Lewis Blvd.<br>Whitehorse, Y.T.           | July 21-29<br>(July 21-30)   |
| 3. | <u>R. G. Hilker</u> | - Geologist<br>(Supervision &<br>Organization) | P.O. Box 4008<br>Whitehorse, Y.T.                  | July 21 & 25<br>(July 20-30) |
| 4. | R. G. Hilker        | - (Geologist)<br>(Report<br>Preparation)       | 324 Silver Valley<br>Rise N.W.<br>Calgary, Alberta | (Sept. 7-17)                 |

The 1982 field work programme consisted of reconnaissance prospecting of the Bear and Grizzly claim groups. No outcrop was found in place on the claim groups, however, abundant frost heaved scree indicated the type of bedrock in areas traversed. The claim groups are located at an elevation between 4,000 feet and 5,000 feet and the surface flora consists of stunted spruce, pine, balsam, willow buckbrush and moss cover. The permafrost feature, "niggerheads", are well developed 24 - 36 inches high in the valleys and parts of north facing slopes. Walking was extremely difficult on traverses adjacent to the claim lines and in the drainage system. The soil horizons noted in the claim area are as follows:

- Surface Vegetation - spruce, pine, balsam, willow, moss - (12 - 18 inches) and scattered scree or float angular boulders.
- A Horizon - humus and black muck (6 - 18 inches).
- B Horizon - sand, silt and gravels.

The Bear claim group is located at the headwater of Red Mountain Creek and the Grizzly claim group is located adjacent to Slate Creek.

## LOCATION AND ACCESS

The Bear and Grizzly claim groups are located on NTS Sheet 105-C-13 and are within the Whitehorse Mining District of the Yukon Territory. The claim groups are not contiguous and are situated south and southwest of the molybdenite prospect on Red Mountain. The Bear claims are centered at latitude 60°57.5'N - longitude 133°43'W and the Grizzly claims are at latitude 60°59.3'N and longitude 133°48.5'W in the Red Mountain and Slate Creek area.

The Alaska Highway, from Whitehorse (Mile 918), crosses the Teslin River at Johnson's Crossing (Mile 836) and follows south along the eastern edge of Teslin Lake. The distance from Whitehorse to Johnson's Crossing is 81 miles, of which 50 miles are paved highway. The Canol Road (Mile 0) departs from the Alaska Highway at Johnson's Crossing and is built in a northeast direction to Ross River. The total length of the Canol Road from Johnson's Crossing to Ross River is 146 miles.

Access to the claim area is by a tractor tote road from the South Canol Road to Red Mountain. A 32-mile tote trail was constructed from Mile 26 on the Canol Road to Red Mountain, in 1968. The tote trail is built near the drainage system of Sydney Creek, west of the Canol Road, and follows a northwest route to Red Mountain and Chalco Creeks at Red Mountain. This trail was originally built as a winter road but follows a good route and therefore can be upgraded at reasonable cost to become an all-weather truck road.

The Canol-Red Mountain tote trail was extended to the southwest end of Swift Lake. Swift Lake is six miles long and permits fixed wing aircraft access to the Red Mountain area. The distance from Swift Lake to Red Mountain is 10 miles by tote trail access.

For the purpose of exploration the Bear/Grizzly claim groups access is by fixed wing and rotary blade aircraft. A rotary blade aircraft from Whitehorse to the claim groups and return requires approximately one hour flying time.

YUKON QUARTZ MINERAL CLAIMS

GENERAL:

The Bear and Grizzly claim groups are located on NTS Sheet 105-C-13 and are within the Whitehorse Mining District.

Bear Claim Group - Latitude 60°57.5'N  
Longitude 133°43'W

<u>Claim Name</u>	<u>Grant No.</u>	<u>Registered Owner</u>	<u>Anniversary Date</u>
BEAR #1-8	YA60161-168	Westfort Petroleums Ltd.	19 Nov. 1983
BEAR #9-16	YA60274-281	Westfort Petroleums Ltd.	19 Nov. 1983
BEAR #17-24	YA60169-176	Westfort Petroleums Ltd.	19 Nov. 1983
BEAR #25-32	YA60177-184	Westfort Petroleums Ltd.	19 Nov. 1983
BEAR #33-40	YA61255-262	Westfort Petroleums Ltd.	19 Nov. 1983
BEAR #41-48	YA60185-192	Westfort Petroleums Ltd.	19 Nov. 1983
BEAR #49-56	YA60193-200	Westfort Petroleums Ltd.	19 Nov. 1983

Grizzly Claim Group - Latitude 60°59.3'N  
Longitude 133°48.5'W

GRIZZLY #33-40	YA60121-128	Westfort Petroleums Ltd.	19 Nov. 1983
GRIZZLY #41-44	YA60129-132	Westfort Petroleums Ltd.	19 Nov. 1983
GRIZZLY #65-72	YA61263-270	Westfort Petroleums Ltd.	19 Nov. 1983
GRIZZLY #73-80	YA73846-853	Westfort Petroleums Ltd.	19 Nov. 1983

STATUS & LAPSE DATES  
BEAR CLAIM GROUP (QUARTZ)  
Red Mountain/Slate Creek Area  
NTS Sheet 105-C-13  
Whitehorse Mining District, Y.T.

Westfort Petroleums Ltd. et al (Sawtooth Project)

<u>Claim Name</u>	<u>Grant No.</u>	<u>Registered Owner</u>	<u>Anniversary Date</u>
BEAR #1-8	YA 60161-168	Westfort Petroleums Ltd.	19 November 1983
BEAR #9-16	YA 60274-281		19 November 1983
BEAR #17-24	YA 60169-176		19 November 1983
BEAR #25-32	YA 60177-184		19 November 1983
BEAR #33-40	YA 61255-262		19 November 1983
BEAR #41-48	YA 60185-192		19 November 1983
BEAR #49-56	YA 60193-200		19 November 1983

Total - 56 BEAR CLAIMS - Tags on Posts July/1982.

History of Assessment Work

1. Filed May 25/1982 - Form "D", Certificate of Work to 19 November, 1983

STATUS & LAPSE DATES  
GRIZZLY CLAIM GROUP (QUARTZ)  
Red Mountain/Slate Creek Area  
NTS Sheet 105-C-13  
Whitehorse Mining District, Y.T.

Westfort Petroleums Ltd. et al (Sawtooth Project)

<u>Claim Name</u>	<u>Grant No.</u>	<u>Registered Owner</u>	<u>Anniversary Date</u>
GRIZZLY #33-40	YA 60121-128	Westfort Petroleums Ltd.	19 November 1983
GRIZZLY #41-44	YA 60129-132		19 November 1983
GRIZZLY #65-72	YA 61263-270		19 November 1983
*GRIZZLY #73-80	YA 73846-353		19 November 1983

\*Denotes claims that the "B Form" - Record of A Claim has not been received.

Total - 28 GRIZZLY CLAIMS - Tags on Posts July, 1982.

History of Assessment Work

1. Filed May 25/1982 - Form "D", Certificate of Work to 19 November, 1983

## GENERAL GEOLOGY

Geological mapping was conducted in the Rosy/Swift Lakes area by Robert Mulligan during the summer field season of 1950, 1951, 1952, and 1953. The geological data was compiled on the Teslin map sheet (Map 1125A) NTS Sheet 105/C and published in G.S.C. Memoir 336 (1963).

The oldest recognizable formation in the area has been mapped as the Big Salmon Complex (Unit 2), of Mississippian period or earlier. Unit 2 consists of a variety of metamorphosed sedimentary and volcanic rocks in a northwest trending belt. This unit, due to its metamorphosed condition, may be correlated with the Yukon Group sediments which lie to the north and west. However, R. Mulligan noted that Unit 2 conformably underlie Mississippian limestones to the east and therefore indicated younger rocks than those of the Yukon Group.

The most abundant rock types occurring within the Big Salmon Complex are micaceous quartzites, quartz-mica schists and gneisses, dark argillaceous rocks and derived slates and schists, chlorite, biotite and epidote-rich rocks and amphibolite and albite-gneiss.

Map Unit 1 is a somewhat higher grade metamorphic assemblage consisting of quartz-hornblende and quartz-feldspar gneiss and amphibolite with some diorite. The age of this group is uncertain, but it appears to be at least, in part, equivalent to Unit 2 and perhaps, in part, younger.

The next youngest rocks, Unit 3, have been mapped tentatively, according to their lithology, in the southernmost part of the survey area. Unit 3 comprises various lavas and fragmental volcanic rocks with minor interbedded argillite, siltstone, chert and a few bands of limestone, chiefly of Triassic and probably Permian age.

Unit 4 is a band of Upper Triassic and/or Jurassic sediments which lies along the southwestern side of the survey area, north of the Canal Road. These sediments consist of argillaceous sandstone and siltstone, greywacke, conglomerate, black limestone and some associated volcanic rocks.

Unit 5, of unknown but probably of Mesozoic age, lies in a belt roughly on strike with Unit 4 and to the south of the Canal Road. Rocks within this unit consist largely of fairly fresh volcanic augite porphyry with occasional hornblende and feldspar phenocrysts and interbedded pyroclastic rocks, greywacke, sandstone, argillite and minor chert.

One ultramafic intrusive body, Unit 6, of Jurassic or Cretaceous age, has been mapped within the band of Unit 5. These rocks are described as a pyroxenitic facies of peridotite. Secondary minerals include serpentine, talc and fibrous antigorite and chrysotile. Minor magnetite and traces of chromite are also present.

The Cretaceous Coast and Cassiar Intrusives, Unit 7, occur as, generally, large, irregular bodies throughout the length of the Big Salmon Range, intruding mainly rocks of the Big Salmon Complex (Unit 2). The major intrusive rock types include granite, granodiorite and diorite.

The youngest rocks, Unit 8, consist of porphyritic and felsite plugs and porphyritic, fragmental and amygdaloidal volcanic rocks which have been mapped as small plugs in the northwest of the map area and at Red Mountain.

GENERAL GEOLOGY (Con't)

Glacial drift and alluvium, Unit 9, occupies all the valley floors and occurs in a relatively broad belt on the eastern side of the area, west of the Nisutlin River.

Folding is evident throughout all of the sedimentary rocks in the region. These folds may be broad and open or tight, possibly isoclinal and some probably overturned. Axes trend generally north to northwest, parallel with the regional trend of formations. Faulting is also prevalent throughout the area and is believed to be very important, at least with regard to local stratigraphy.

TABLE OF FORMATIONS

Big Salmon Range

CENOZOIC

*Quaternary*

*Pleistocene and Recent*

9 - *Drift and alluvium*

MESOZOIC

*Cretaceous and Tertiary (?)*

8 - *Andesite and dacite porphyry and agglomerate, feldspar-quartz porphyry and felsite plugs (Red Mountain).*

*Cretaceous*

*Coast and Cassiar Intrusions*

7 - *Granite, granodiorite; diorite. 7a:gabbro, diorite, hornblendite, pyroxenite; granodiorite. 7b: syenite, monzonite, gabbro; granodiorite, diorite.*

*Jurassic or Cretaceous*

6 - *Peridotite, pyroxenite; serpentine.*

*Triassic and/or Jurassic (?)*

5 - *Undifferentiated volcanic and sedimentary rocks. 5a: augite, hornblende and feldspar porphyry flows; agglomerate, breccia, tuff, greenstone. 5b: argillaceous siltstone, sandstone, greywacke. 5c: banded chert.*

4 - *Argillaceous sandstone and siltstone, greywacke; conglomerate, black limestone; associated volcanic rocks.*

PALEOZOIC AND MESOZOIC

*Permian and/or Triassic*

3 - *Volcanic and altered volcanic (?) rocks, chert; minor argillite and quartzite; intermediate lava and pyroclastic rocks; basic lava; limestone.*

PALEOZOIC

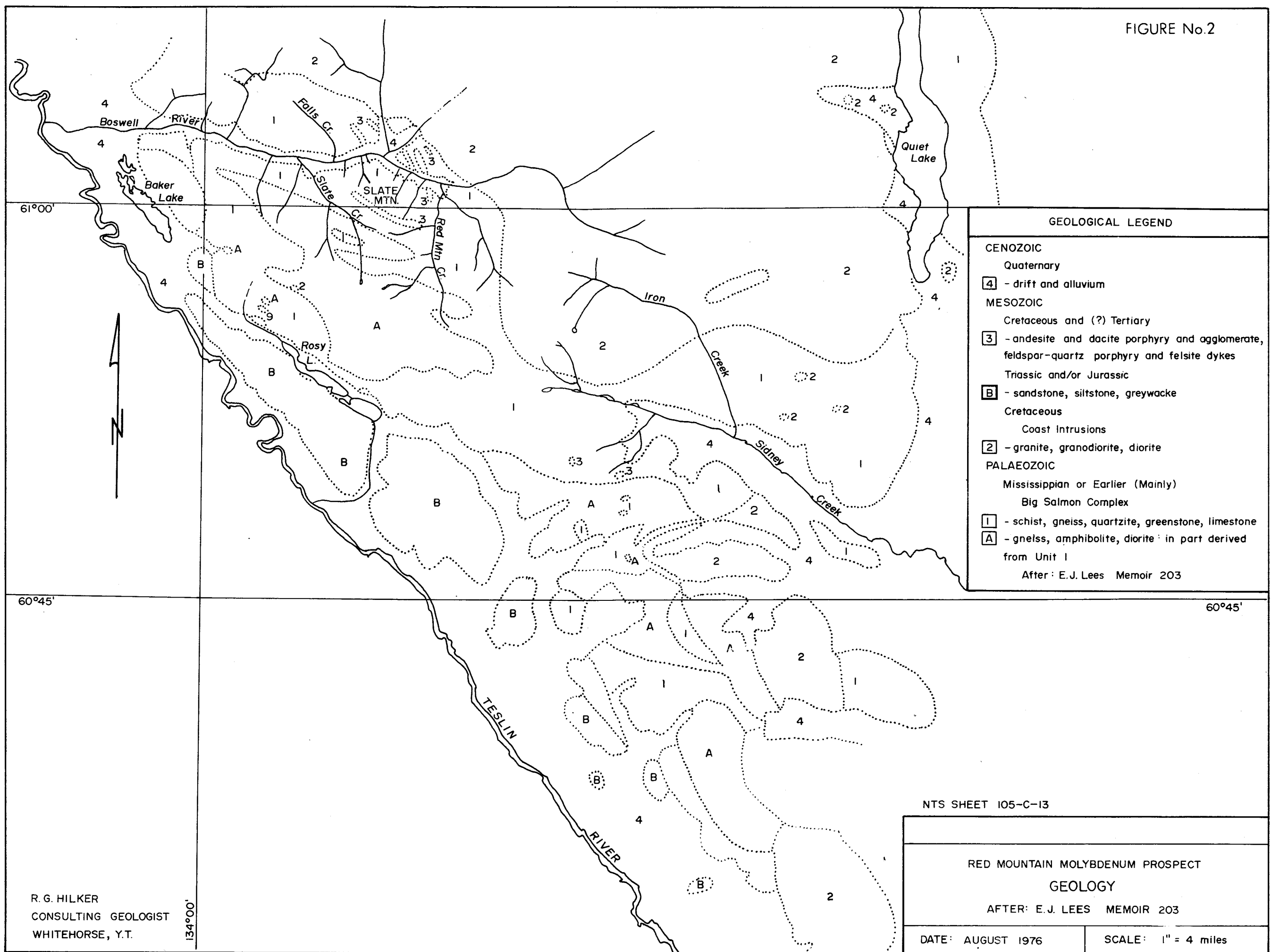
Mississippian or Earlier

Big Salmon Complex

- 2 - Schist, gneiss, quartzite, greenstone, limestone.
  - 2a: quartzite and quartz-mica schist and gneiss.
  - 2b: dark argillaceous schist, slate, quartzite.
  - 2c: limestone.
  - 2d: green chlorite, epidotitic rocks, biotite schist, amphibolite.
  - 2e: albite gneiss, chlorite-epidote amphibolite.
  - 2f: quartz-biotite-amphibole-epidote-plagioclase-garnet gneiss.
  
- 1 - Quartz-hornblende and quartz-feldspar-hornblende gneiss and amphibolite; diorite (?); at least in part derived from Unit 2.

Geology By - Robert Mulligan, G.S.C. Memoir 326.

FIGURE No.2



GEOLOGICAL LEGEND

- CENOZOIC**  
 Quaternary  
 [4] - drift and alluvium
- MESOZOIC**  
 Cretaceous and (?) Tertiary  
 [3] - andesite and dacite porphyry and agglomerate, feldspar-quartz porphyry and felsite dykes  
 Triassic and/or Jurassic  
 [B] - sandstone, siltstone, greywacke
- Cretaceous**  
 Coast Intrusions  
 [2] - granite, granodiorite, diorite
- PALAEOZOIC**  
 Mississippian or Earlier (Mainly)  
 Big Salmon Complex  
 [1] - schist, gneiss, quartzite, greenstone, limestone  
 [A] - gneiss, amphibolite, diorite: in part derived from Unit 1
- After: E.J. Lees Memoir 203

NTS SHEET 105-C-13

RED MOUNTAIN MOLYBDENUM PROSPECT  
 GEOLOGY  
 AFTER: E.J. LEES MEMOIR 203

DATE: AUGUST 1976

SCALE: 1" = 4 miles

R. G. HILKER  
 CONSULTING GEOLOGIST  
 WHITEHORSE, Y.T.

134°00'

## GEOLOGY OF THE RED MOUNTAIN AREA

The Red Mountain geology northeast of Rosy and Swift Lakes to the Boswell River consists of Unit A - gneiss and amphibolite; Unit 1 - Big Salmon Complex, schist-gneiss-greenstone and limestone rocks; Unit 2 - Coast Intrusions, granite, granodiorite and diorite; Unit 3 - volcanic plug rocks. The valley floors on Slate Creek, Red Mountain Creek and Chalco Creek are drift and alluvium covered.

The Red Mountain gossan zone is contained within a volcanic plug of Unit 3 - Cretaceous and Tertiary (?) in age, that intruded the Mississippian or earlier; Unit 1 - Big Salmon Complex assemblage of schist, gneiss, quartzite, greenstone and limestone, and Unit A - quartz-hornblende, quartz-feldspar-hornblende gneiss (hornfels), amphibolite and diorite.

Possibly, offshoots of the Coast Intrusions batholith granitic rock types intruded the Big Salmon Complex prior to the later volcanic plug intrusion in the area of Red Mountain. The heat and pressure in the volcanic plug intrusive caused considerable alteration in the plug and in the Big Salmon metamorphic rock types.

The reddish-yellow, brown and pale yellow-white coloured plug consists of andesite and dacite porphyry and agglomerate, feldspar-quartz porphyry and felsite rock types. Considerable oxidation of up to 20% pyrite content in the volcanic plug and Big Salmon Complex has caused the large gossan zone on Red Mountain and in other plugs located four miles north and adjacent to the Boswell River.

Sulphide mineralization occurs in the porphyritic and felsitic plug rocks, in the contacting Big Salmon hornfelsic rocks on Red Mountain and in the area to the northwest.

The multi-coloured porphyry zone gossan on Red Mountain extends northwest of Slate Mountain and is approximately four miles long and about 1500 - 2500 feet in width. Molybdenite mineralization occurs in surface outcrops, of the northwest trending porphyritic and felsitic plug, on the south side of Red Mountain above Chalco Creek. The mineralization occurs at about the 4500 to 5200 foot elevation.

The gossan zone on the south face of Red Mountain varies from a weathered deep brown to a yellowish-cream colour and consists mainly of felsite rock.

TABLE OF FORMATIONS

Red Mountain Area - NTS Sheet 105-C-13

CENOZOIC

*Quaternary*

*Pleistocene and Recent*

4 - *Drift and alluvium*

MESOZOIC

*Cretaceous and Tertiary (?)*

3 - *Andesite and dacite porphyry and agglomerate, feldspar-quartz porphyry and felsite plugs (Red Mountain area).*

*Cretaceous*

*Coast Intrusions*

2 - *Granite, granodiorite, diorite.*

PALEOZOIC

*Mississippian or Earlier*

*Big Salmon Complex*

1 - *Schist, gneiss, quartzite, greenstone, limestone.*

---

A - *Quartz-hornblende and quartz-feldspar-hornblende gneiss and amphibolite; diorite; in part derived from Unit 1.*

Geology By - E. J. Lees, G.S.C. Memoir 203

BEAR/GRIZZLY CLAIM GROUP GEOLOGY

Bear Claim Group

The Bear claim group is located at the forked headwaters of Red Mountain Creek. The 56 claims overlay Mississippian or Earlier aged rocks of the Big Salmon Complex and contact with Unit A - Gneiss/Amphibolite/Diorite unit, that is in part derived from the Big Salmon Complex.

The Bear claims are situated approximately 1 1/2 miles south of the Amoco/Tintina Silver Mines, Red Mountain molybdenite prospect.

The Bear claim group geology is shown on Plan #1, that is located in the pocket of the report.

Grizzly Claim Group

The Grizzly claim group is located adjacent to Slate Creek and approximately 2 1/2 miles west of the Red Mountain molybdenite prospect. The 28 Grizzly claims overlay Mississippian or Earlier aged rocks of the Big Salmon Complex and contact with Unit A - Gneiss/Amphibolite/Diorite unit, that in part is derived from Unit 1.

The Grizzly claim group geology is shown on Plan #1, that is located in the pocket of the report.

PALEOZOIC

*Mississippian or Earlier (Mainly) Big Salmon Complex*

Unit-1 *Schist, gneiss, quartzite, greenstone and limestone.*

Unit-A *Gneiss, amphibolite and diorite, in part derived from Unit-1.*

*Geology by - E. J. Lee, GSC Memoir 203.*

BIBLIOGRAPHIC REFERENCE TO GEOLOGY AND DATA

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2. Memoir 336 - G.S.C., Geology of Teslin Map Area - Yukon Territory (105-C) - by Robert Mulligan, 1963.
3. G.S.C. Map 1125A - Teslin, Yukon Territory - by R. Mulligan, 1950-1953.
4. Memoir 203 - G.S.C., Geology of Teslin - Quiet Lake Area - Yukon Territory - by E. J. Lees, 1936.
5. Geophysics Paper 1344 - Rosy Lake, Sheet 105-C-13 - Airborne Magnetics Survey. Scale: one inch = one mile.
6. The Northern Miner - Tintina Silver Mines and Amoco Canada Petroleum December 10, 1981 issue and September 2, 1982 issue.

ECONOMIC GEOLOGY

RED MOUNTAIN AREA

The Red Mountain molybdenite sulphide showings within the host porphyry and felsite plug rock types indicate a typical moly porphyry deposit. The porphyry and felsite rocks have been aged at Cretaceous-Tertiary (?) or approximately 120 MY-Mid Cretaceous to 58 MY-Lower Tertiary. The Red Mountain molybdenite showings and host rocks contain several characteristics of a porphyry type of deposit. At surface, the sulphide mineralization occurs in veinlets, fracture filling and disseminated in the host rocks.

The Red Mountain molybdenite mineralization plug consists of porphyry and felsite rock types. The favorable host rock porphyry and felsite plug is located near Chalco Creek on the south end and strikes in a northwest direction on Slate Mountain and the ridge adjacent to Slate Creek. The porphyry and felsite plug occurs in an elongated cigar-shaped pattern and is probably intersected by major faulting, as indicated by the tributary creek drainage system. The southern end of the elongated-shaped prospect area contains molybdenite and pyrite sulphide mineralization in a porphyry and felsite host rock. In parts, near Red Mountain, the hornfels contain molybdenite, pyrite and chalcopyrite sulphide mineralization. The Big Salmon Complex hornfels are reported to also contain stibnite, scheelite, tetrahedrite, galena and sphalerite in Chalco, Red Mountain and Slate Creeks.

The "halo" of lead, zinc, silver and iron surrounding the molybdenite innermost alteration zone on Red Mountain is typical of a classic porphyry-type deposit. The elongated cigar-shaped Red Mountain plug is within an area of twenty square miles of Big Salmon Complex hornfel rocks. Therefore, the twenty square mile area can be considered to be a prime exploration target for a porphyry type of molybdenum deposit.

Amoco Canada Petroleum and Tintina Silver Mines Ltd. reported grade and reserves of molybdenite ore at the Red Mountain prospect in the Northern Miner - December 10, 1981 issue (see newspaper clippings - following page).

<u>Category</u>	<u>Tons</u>	<u>Moly</u>
Over 0.15% MoS <sub>2</sub>	79,111,000	0.223%
Over 0.20% MoS <sub>2</sub>	41,274,000	0.268%
Over 0.25% MoS <sub>2</sub>	24,719,000	0.307%

Red Mountain Molybdenite Project

NTS Sheet 105-C-13 and 105-F-4  
Rosy/Swift Lake Area - Yukon Territory  
Press Clipping

THE NORTHERN MINER December 10, 1981

Plan underground development

## Major moly deposit in Yukon

Although molybdenum has lost some of its price lustre, the Red Mountain deposit in the Yukon is now shaping as a major that will rank right up with this country's senior producers both as to tonnage and grade, The Northern Miner feels. It is being developed by Amoco Canada Petroleum (70%) and Tintina Mines (30%), which have been reporting some pretty meaningful drill holes of late.

Results already indicate a large-scale block cave operation, according to H. H. Cox, P. Eng. On this premise, ore reserve calculations

have just been made by D. W. Asbury using a cutoff grade of 0.15%  $\text{MoS}_2$ . These are impressive:

Category	Tons	Moly
Over 0.15% $\text{MoS}_2$	79,111,000	0.223%
Over 0.20% $\text{MoS}_2$	41,274,000	0.268%
Over 0.25% $\text{MoS}_2$	24,719,000	0.307%

The three Canadian molybdenum producers at present are Endako, Boss Mountain and Amax's Kitsault, B.C., mine formerly known as B.C. Moly. Canadian mines producing molybdenum as a by-product are Brenda, Highmont, Lornex, Gibraltar and others.

See Page 21

THE NORTHERN MINER September 2, 1982

## Second hole complete a third is now drilling on Yukon moly bet

Amoco Canada Petroleum reports it has completed a second hole and is drilling a third at the Red Mountain molybdenum property of Tintina Mines in the Yukon.

The second hole, No. 82-28, returned the following assays:

Footage		% $\text{MoS}_2$
From	To	
26	758	.078
758	1,250	.115
1,250	1,339	.012
1,339	1,378	.161
1,378	1,447	.014
1,447*	1,732	.155
1,732	2,096	.219
2,096	2,634	Lightly

mineralized dyke

\*From 1,447 ft. to 2,096 ft. averaged 649 ft. of .191%  $\text{MoS}_2$ .

Tintina president C. H. Franklin says that though it is thought the hole "would have eventually re-entered quartz monzonite, it was stopped at 2,634 ft. in the interest of economy and permissible drilling time in the relatively short Yukon season."

Mr. Franklin says a third hole — No. 82-29 — at last report was drilling at 913 ft., virtually all in quartz monzonite showing molybdenum mineralization throughout, with the exception of a thin barren dyke from 614 to 641 ft. He said core from this hole was currently being crushed and shipped for assay.

## Moly

From Page 1

Published reserves at the three Canadian producers of molybdenum only are:

	Tons	Molybdenite
Endako —	254,000,000	0.137%
Boss Mountain —	5,438,000	0.22%
Amax —	105,000,000	0.192%

A recommendation is made to continue exploration on the Red Mountain property with a very limited footage of surface diamond drilling, followed by underground development and underground diamond drilling.

Mr. Cox points out that the preferable access to the main ore zone following the suggested minimal surface drilling could be from the valley of the Boswell River where the elevation is below 3,500 ft. (The elevation of the surface area above the indicated mineralization is approximately 5,300 ft. above sea level) where in the event of large tonnage production a surface plant could be satisfactorily located. Also, the elevation at which such a drive would approach the area of interest would permit both up and down diamond drill holes for continued exploration.

An order of magnitude cost for 11,000 ft. of development size adit has been estimated by a well qualified engineering contracting company at \$5 to \$6 million. A production size drive of the same length is estimated at between \$9 and \$10 million. Both prices include all-in costs as to mobilization, camps, the adit itself and demobilization. Not included would be auxiliary drives over 11,000 ft., the diamond drilling underground and above normal ground support.

Alternative to the foregoing recommendation, the joint venture is still investigating the possible achievement of a much larger tonnage of lower grade material to be mined by open pit. It is suggested approximately four more deep surface diamond drill holes should establish the future course of action.

## CONCLUSIONS /RECOMMENDATIONS

The Bear/Grizzly claim groups are located near the Red Mountain molybdenite prospect. The mineralization occurs in a Cretaceous and Tertiary (?) aged volcanic plug that intruded the Mississippian or Earlier aged Big Salmon Complex assemblage. The claim groups contain very minor bedrock exposure. The Bear/Grizzly claims overlay Unit-1, of the Big Salmon Complex rock types and Unit-A, gneiss/amphibolite/diorite rocks. The Unit-A, quartz-feldspar-hornblende gneiss or hornfels is reported to host molybdenite, pyrite and chalcopyrite mineralization near the volcanic plug contacts.

The Big Salmon Complex contacts between Unit-A and Unit-1 should be prospected on the Bear/Grizzly claim groups. It is recommended to conduct VLF/electromagnetic survey across areas of the Unit-A and Unit-1 contacts. The VLF/EM-16 instrument is capable of delineating geological contacts. However, an orientation survey would be required on the Bear/Grizzly claims to check if the contacts can be mapped with the electro-magnetic geophysical method.

A linegrid would be required to be established perpendicular to the contacts between Unit-A and Unit-1, at 400 feet crosslines and 100 feet spaced stations.

Geochemical sampling at 200 feet stations is recommended on the linegrid to supplement the VLF/electromagnetic data. The geochemical soil samples should be determined for Mo-Cu-Ag-Pb or moly-copper-silver and lead.

Access to the property would be by helicopter from Whitehorse. The scrub bush is extremely thick in the valleys and side terrain on the claim groups and difficult to traverse. The survey work and exploration could be conducted from mid-July to the end of August, in approximately a six-week period. However, the area is occasionally reported to be extremely wet during the summer months.

ESTIMATED COST OF PROGRAMME

The following listed estimated costs are for prospecting exploration on the Bear/Grizzly quartz claim groups. Orientation surveys should be conducted prior to any geophysical and geochemical surveys to determine the best method of operation.

Bear Claim Group - (56 claims)

Linegrid flagging and chaining 20 linemiles -----	\$ 3,000.00
Electro-Magnetic Survey - 20 linemiles -----	4,000.00
Geochemical Survey - 20 linemiles -----	6,000.00
- 500 determinations @ \$7.00 -----	\$3,500
- Field equipment -----	500
- Labour -----	<u>2,000</u>
Camp and Supplies -----	4,500.00
- 60 mandays @ \$75/day	
Helicopter Transportation - 2 hrs. -----	1,100.00
Fixed Wing Flying -----	500.00
Misc. Crew Expenses -----	1,500.00
Geological Report -----	<u>2,000.00</u>
Total Costs -----	\$22,600.00

Grizzly Claim Group - (28 claims)

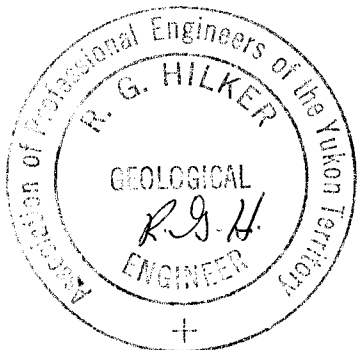
Linegrid - flagging and claiming 10 linemiles -----	\$ 1,500.00
Electro-Magnetic Survey - 10 linemiles -----	2,000.00
Geochemical Survey - 10 linemiles -----	3,000.00
Camp and Supplies -----	2,250.00
- 30 mandays @ \$75/day	
Helicopter Transportation - 2 hrs. -----	1,100.00
Misc. Crew Expenses -----	750.00
Geological Report -----	<u>1,000.00</u>
Total Costs -----	\$11,600.00

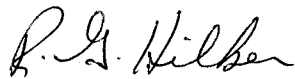
CERTIFICATION

I, ROBERT G. HILKER, of 324 Silver Valley Rise, N.W. in the City of Calgary, in the Province of Alberta, DO HEREBY CERTIFY:

1. THAT I am a Consulting Geologist, with an office at Aurun Mines Ltd., located at #910 - 640 - 8th Avenue S.W., in the City of Calgary, in the Province of Alberta.
2. THAT I am a graduate of the Michigan Technological University located at Houghton, Michigan, U.S.A., where I obtained a Bachelor of Science Degree in Geological Engineering (Exploration Option) in 1962.
3. THAT I am a registered member in good standing of the Association of Professional Engineers of the Yukon Territory, and a Fellow of the Geological Association of Canada, and am registered with the Association of Professional Engineers of British Columbia (non-residence license).
4. THAT I have practised my profession as an engineer and geologist for the past twenty years.
5. THAT I have personally been on the Bear and Grizzly claim groups on July 21st and 25th, 1982, and have prepared the geology report on the Quartz Mineral Claims, NTS Sheet 105-C-13, Whitehorse Mining District, by researching literature and data in the Red Mountain/Slate Creek area, AND THAT I have visited the Red Mtn. property for the purpose of evaluation and orientation during the period 1974-1976.
6. THAT I have no direct interest in the Bear and Grizzly Quartz Mineral Claims and THAT I have an indirect carried interest in the Quartz Mineral Claims.
7. THAT I have no direct or indirect interest in any securities of Westfort Petroleum Ltd. et al.

DATED this 14th day of September, 1982 at the City of Calgary in the Province of Alberta.



  
R. G. Hilker, P. Eng.

APPENDIX

Westfort Petroleum Ltd. et al  
Sawtooth Project

R. G. Hilker, P. Eng.  
September 14/1982

AFFIDAVIT OF EXPENDITURE

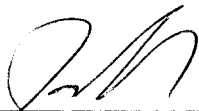
I, S. B. GIENI, accountant for Aurun Mines Ltd., do hereby certify that a minimum of \$8,600.00 was spent on the Bear Claim Group during July 16th to July 30th, 1982;

Bear # 1 - 8 YA60161-168  
Bear # 9 - 16 YA60274-281  
Bear #17 - 24 YA60169-176  
Bear #25 - 32 YA60177-184  
Bear #33 - 40 YA61255-262  
Bear #41 - 48 YA60185-192  
Bear #49 - 56 YA60193-200

THE BEAR CLAIM GROUP is located on NTS Sheet #105-C-13 and is within the Whitehorse Mining District.

AURUN MINES LTD. accounting records are located at the company offices; #910 - 640 - 8th Avenue S.W., Calgary, Alberta.

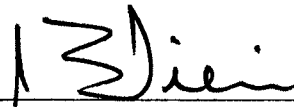
DATED at the City of CALGARY in the Province of ALBERTA this 20<sup>th</sup> day of OCTOBER, 1982.



NOTARY PUBLIC *in and for the*  
JAMES W. OWEN *Province of Alberta.*

My appointment expires on the  
31st day of December, 1983.

*20-Oct-82*



S. B. GIENI  
ACCOUNTANT

AFFIDAVIT OF EXPENDITURE

I, S. B. GIENI, accountant for Aurun Mines Ltd., do hereby certify that a minimum of \$4,300.00 was spent on the Grizzly Claim Group during July 16th to July 30th, 1982;

Grizzly #33 - 40 YA60121-128  
Grizzly #41 - 44 YA60129-132  
Grizzly #65 - 72 YA61263-270  
Grizzly #73 - 80 YA73846-853

THE GRIZZLY CLAIM GROUP is located on NTS Sheet #105-C-13 and is within the Whitehorse Mining District.

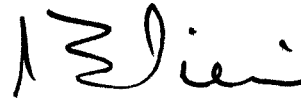
AURUN MINES LTD. accounting records are located at the company offices; #910 - 640 - 8th Avenue S.W., Calgary, Alberta.

DATED at the City of CALGARY in the Province of ALBERTA this 20<sup>th</sup> day of OCTOBER, 1982.



NOTARY PUBLIC in and for the  
Province of Alberta  
JAMES W. OWEN

My appointment expires on the  
31st day of December, 1983.



S. B. GIENI  
ACCOUNTANT

Bear/Grizzly Claim Group  
1982 Geological Property Expenditures  
Red Mtn. Area - Sheet 105-C-13  
Whitehorse Mining District - Y.T.

The 1982 geological programme costs are pro-rated between 56 Bear claims and 28 Grizzly claims for a total of 84 claims in the two non-contiguous groups. Total 1982 expenditure of \$12,900.00 (see Summary Costs).

Bear Group - (56 claims)

Costs -  $56/84 \times \$12,900 = \underline{\$8,600.00}$ .

Grizzly Group - (28 claims)

Costs -  $28/84 \times \$12,900 = \underline{\$4,300.00}$ .

WESTFORT PETROLEUMS LTD., ET AL  
 SAWTOOTH PROJECT  
 BEAR/GRIZZLY CLAIM GROUPS  
 NTS SHEET 105-C-13

Whitehorse Mining District, Y.T.

Summary of Prospecting Costs

Field Programme (July 16-30/1982)

- Bear Claim Group (56 claims) July 21-25/1982
- Grizzly Claim Group (28 claims) July 26-29/1982
- Total Property Time Interval (84 claims) July 16-30/1982

	<u>Costs</u>
1. Prospector's Labour -----	\$ 2,500.00
- G. K. Isaac (July 16-30) -----	\$1,500
- N.R. Fraser (July 21-30) -----	<u>1,000</u>
2. Supervision and Geology -----	2,800.00
- R. G. Hilker (July 20-30) -----	\$2,200
- R. G. Hilker (July 21 and 25) -----	<u>600</u>
3. Fixed Wing Flying -----	319.90
- Alkan Air Invoice #2522 - July 21/82 ---	\$ 159.95
- Alkan Air Invoice #2534 - July 29/82 ---	<u>159.95</u>
4. Rotary Blade Flying -----	2,224.09
- TNA Invoice #62487 - July 21/82 -----	\$ 705.20
- TNA Invoice #62703 - July 25/82 -----	813.69
- TNA Invoice #62708 - July 29/82 -----	<u>705.20</u>
5. Camp and Related Costs -----	1,800.00
- Bear Claim Group - 10 man days -----	\$1,000
- Grizzly Claim Group - 8 man days -----	<u>800</u>
6. Radio Communications -----	100.00
- Total North Communications #6827	
7. Field Equipment and Supplies -----	500.00
8. Geology Report -----	2,675.00
- Sinclair Drafting (July 23) -----	\$ 175
- Aurun Mines (R G. Hilker) -----	<u>2,500</u>
 Total Cost - 1982 Prospecting and Geology Report -----	 <u>\$12,918.99</u>

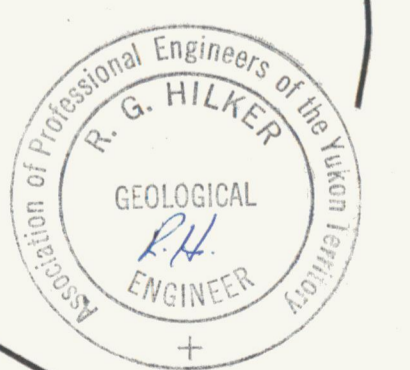


105-F-4  
105-C-13

105-F-4  
105-C-13

**LEGEND:**

- CENOZOIC
- QUATERNARY
- 4** DRIFT AND ALLUVIUM
- MESOZOIC
- CRETACEOUS AND (?) TERTIARY
- 3** ANDESITE AND DACITE PORPHYRY AND ACCLOMERATE, FELDSPAR-QUARTZ PORPHYRY AND FELSITE DYKES IN ASSIC AND/OR DURASSIC.
- 2** GRNITE, GRANDIORITE, DIORITE
- PALAEZOIC
- MISSISSIPPIAN OR EARLIER (MAINLY) BIG SALMON COMPLEX
- 1** SCHIST, GNEISS, QUARTZITE GREENSTONE, LIMESTONE
- A** GNEISS, AMPHIBOLITE, DIORITE IN PART DERIVED FROM UNIT -1



**WESTFORT PETROLEUMS LTD.**

**BEAR AND GRIZZLY CLAIM GROUPS  
GENERAL GEOLOGY AND  
LOCATION PLAN**

SAWTOOTH PROJECT	DATE: JULY, 1982
DRWN: G. SINCLAIR	SCALE: 1 inch = 1/2 mile

R.G. HILKER  
AURON MINES LTD.  
CALGARY, ALBERTA