

MAP NO.            ASSESSMENT REPORT    X            DOCUMENT NO.: 092618  
                         PROSPECTUS                                    MINING DISTRICT: Whitehorse  
                         CONFIDENTIAL            X            TYPE OF WORK: Geochemical, trenching  
105 D 3            OPEN FILE

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REPORT FILED UNDER: Aurum Geological Consultants Inc.

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DATE PERFORMED: 18-25 August, 1988

DATE FILED: 25 November, 1988

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LOCATION:    LAT.: 60 03'N,

AREA: Bennett Lake

---

LONG.: 135 17'W

VALUE \$:

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CLAIM NAME & NO.: GLENLIVET 1-46 (YA75077-122)

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WORK DONE BY: L. Walton

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WORK DONE FOR: Pacific Trans-Ocean Resources Ltd

---

DATE TO GOOD STANDING

REMARKS: #129 GLENLIVET

5 hand trenches were excavated in the SCARLET zone in 1988,

exposing a 2-4 m wide zone of clay gouge over a strike length

of 42 m. Two soil samples from one of the trenches contained

3220 ppb Au, 7.18 ppm Ag, and 1900 ppb Au, 5.39 ppm Ag.



GEOCHEMICAL and TRENCHING  
REPORT  
on the  
GLENLIVET 1 to 46 CLAIMS

Whitehorse Mining District

- Location: 1. Bennett Lake Area, Yukon  
2. 105D/3  
3. Latitude: 60 03'N  
Longitude: 135 17'W

FOR:  
PACIFIC TRANS-OCEAN RESOURCES LTD.  
# 1500 10250-101 Street  
Edmonton, Alberta  
T5J 3P4

BY:  
LORI WALTON, M.Sc.  
AURUM GEOLOGICAL CONSULTANTS INC.  
604-675 West Hastings Street,  
Vancouver, B.C., V6B 4W3

October 4, 1988

This report has been examined by  
the Geological Evaluation Unit  
under Section 53 (4) Yukon Quartz  
Mining Act and is allowed as  
representation work in the amount  
of \$ 4600.00.

*J. J. Gerner*

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

## Summary

The GLENLIVET claims consist of 46 contiguous mineral claims located in N.T.S. sheet 105D-3 of the Whitehorse Mining District, Yukon. The property is located 75 kilometers south of Whitehorse and 20 kilometers southeast of the Mt. Skukum and the Skukum Creek gold-silver deposits.

The GLENLIVET property is located in the northeast corner of the Tertiary Bennett Lake caldera complex. The claims are underlain by rhyolite and andesite subaerial volcanics which are cut by numerous rhyolite dykes and plugs. Later faults related to caldera collapse cut all units on the property. Several of the faults have associated clay alteration zones with some quartz, fluorite and gypsum veining.

Exploration consisted of hand digging 5 trenches in the Scarlet zone (Trenches 88-1 to 88-5). The trenches cut across a north-northwest trending fault contact between a rhyolite plug and volcanic breccias. A 2-4 meter wide zone of intense clay gouge was exposed in all 5 trenches. The clay zone has a strike length of at least 42 meters. Two soil samples from one of the trenches returned values of 3220 ppb gold/7.18 ppm silver and 1900 ppb gold/5.39 ppm silver. Several other samples returned values of over 100 ppb gold. Eight rock samples contained background to near background gold values and silver values of up to 6.8 ppm.

The results of the trenching warrant a follow up surface program in 1989. The cost of this program would be approximately \$ 26,400.

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## INTRODUCTION

This report was prepared at the request of Mr. E. Stewart of Pacific Trans-Ocean Resources Ltd. and describes the exploration work carried out on the GLENLIVET claims during the 1988 field season. Exploration consisting of hand trenching was done under the supervision of Aurum Geological Consultants Inc. between August 18 and August 25, 1988.

## LOCATION and ACCESS

The GLENLIVET claims (N.T.S. sheet 105 D/3) are located near the junction of Crozier and MacAuley Creeks, 75 kilometers south of Whitehorse and 5 kilometers west of the West Arm of Bennett Lake (Figure 1). The claims are situated 20 kilometers southeast of the Mt. Skukum gold deposit and 35 kilometers west of the historic Montana Mountain gold-silver mining camp. The Ridge Au-Ag occurrence is located 2 kilometers south of the claims. The latitude and longitude of the property is 60 03'N and 135 17'W.

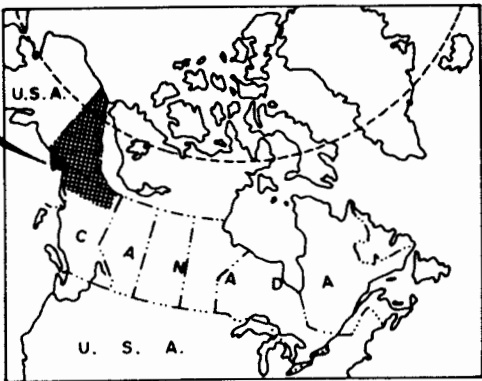
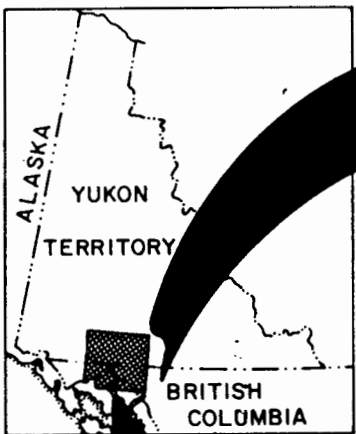
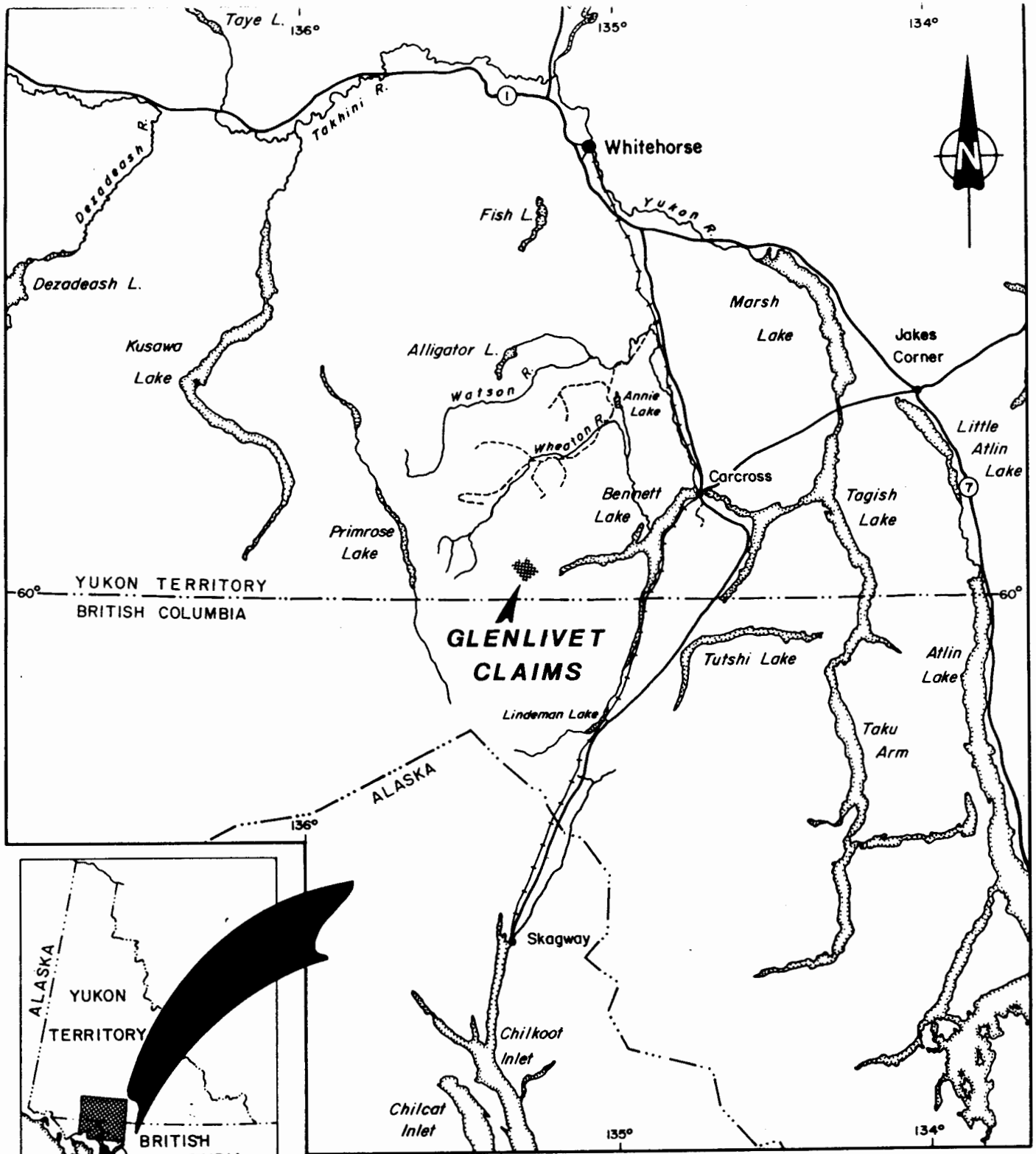
Access to the property is via helicopter from Whitehorse or from a seasonal base located near the Mt. Skukum millsite. The nearest road is the Annie Lake road which leads from the Klondike Highway to the Mt. Skukum millsite. The road passes within 18 kilometers of the property.

## CLIMATE, TOPOGRAPHY and VEGETATION

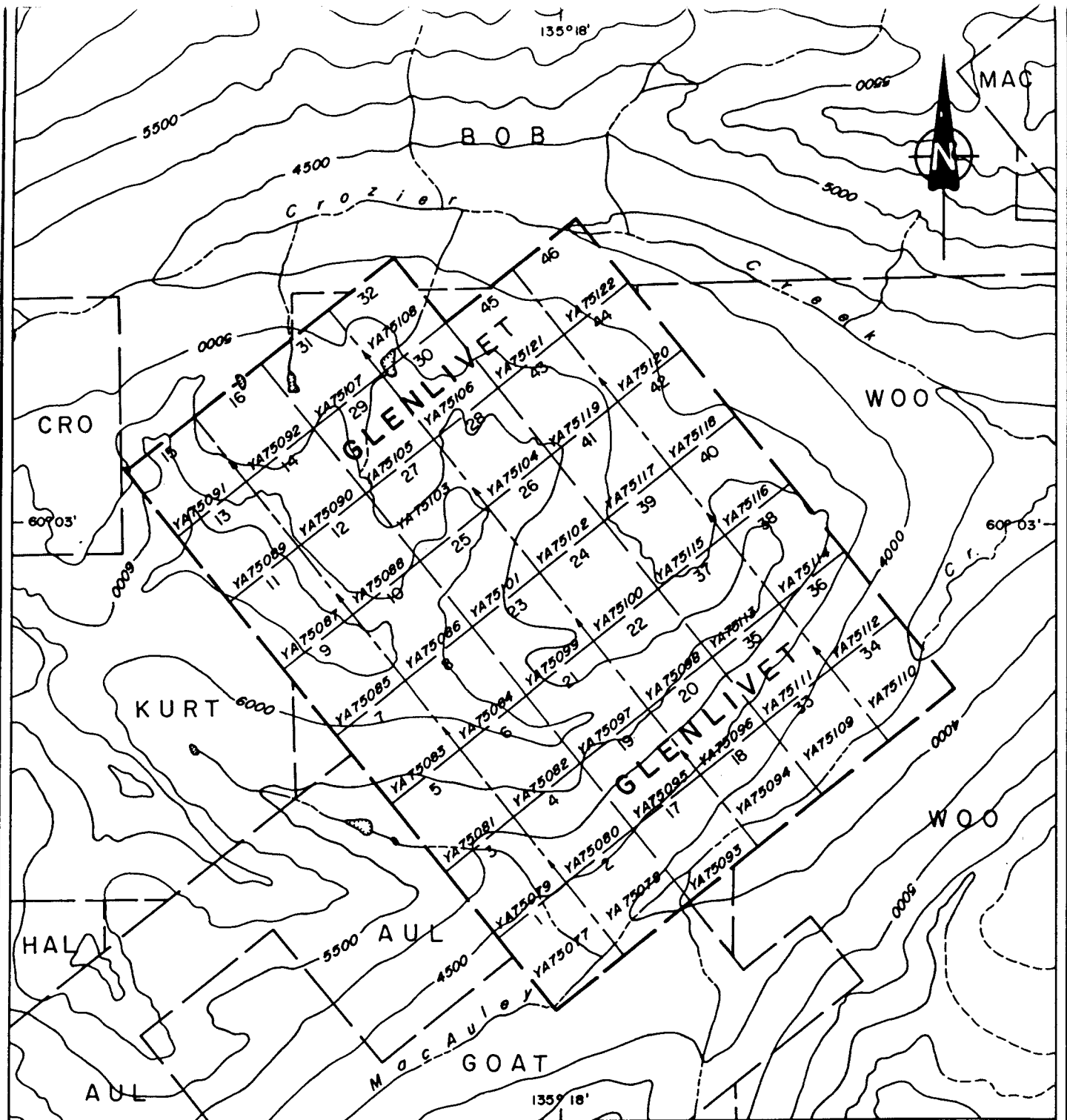
The climate in the Wheaton River and Bennett Lake area is variable, with cool windy summers and long cold winters. Precipitation is light (approximately 40 cm annually), with moderate snowfalls during the winter months. The area is susceptible to periodic high winds from moist Pacific systems rising over the Coast Mountains. Boat travel on Bennett Lake can be dangerous during periods of high wind. The exploration season extends from early June to October.

The topography of the property consists of steep cliffs, talus slopes and alpine cirques. The southeast and northeast sides of the claims are bordered by the east flowing Crozier and MacAuley Creeks. Elevations vary between 1070 meters in MacAuley Creek to 2100 meters on the northwest side of the claims. The area was covered with glaciers during the last major advance of the Cordilleran ice-sheet.

Most of the property is above tree line and vegetation consists of alpine grasses and some stumped willow. Pine and fir trees are located within the creek valleys.



PACIFIC TRANS-OCEAN RESOURCES LTD.	
GLENLIVET CLAIMS	
<b>LOCATION</b>	
Aurum Geological Consultants Inc.	SEPTEMBER, 1988
Drawn by NH	Scale 1:1,000,000
FIGURE : 1	



**LEGEND**

- claim boundary
- claim number
- tag number
- creek
- pond
- elevation contour: interval 500 ft.

Note: adapted from D.I.A.N.D. Quartz and Placer map sheet 105 D-3



PACIFIC TRANS-OCEAN RESOURCES LTD.			
GLENLIVET CLAIMS			
CLAIM LOCATION			
Aurum Geological Consultants Inc.			SEPTEMBER, 1988
NTS 105 D/3	DRAWN BY NH	SCALE 1:30,000	FIGURE: 2

## CLAIM STATUS

The GLENLIVET claims consist of 46 contiguous mineral claims located in 105D-3 of the Whitehorse Mining District. The claim status is listed below and the claim distribution is shown in Figure 2.

<u>Claim Name</u>	<u>Grant Numbers</u>	<u>Expiry Date*</u>
GLENLIVET 1-46	YA75077-122	Sept 10, 1989

\* subject to approval by the Mining Recorder.

The claims are owned by AGIP Resources Ltd. of Toronto, Ontario and are held under an option agreement with Pacific Trans-Ocean Resources Ltd. of Edmonton, Alberta.

## HISTORY

The first recorded staking in the Wheaton River and Bennett Lake district occurred in 1893 when Frank Corwin and Thomas Rickman located several claims on Carbon Hill, Chieftain Hill, Idaho Hill and possibly Gold Hill. The men died shortly after without disclosing the location of their claims (Cairnes, 1912). The discovery of precious metal veins in the Montana Mountain and the Wheaton River areas in the early 1900's generated a resurgence of exploration activity. Exploration, development and some mining has continued intermittently since then. Activity in the area has increased in the 1980's with the temporary opening of the Venus mine (United Keno Hill Mines Ltd.) in 1980-81, the discovery of the Mt. Skukum gold deposit (164,000 tons at 0.73 oz/ton Au and 0.63 oz/ton Ag: Total Erickson 1985 Annual report) in 1981-1983, and the discovery of the Skukum Creek deposit in 1985 (821,000 tons @ 0.225 opt gold and 8.96 opt silver: 1988-89 Canadian Mines Handbook). Mining of the Mt. Skukum deposit commenced in the spring of 1986 at the rate of 300 tons per day. Mining operations have been suspended in 1988, pending discovery of additional ore reserves. Production of the Skukum Creek deposit is scheduled to begin at the end of 1988.

The GLENLIVET claims were staked by AGIP Canada Ltd. in September 1982 and were optioned to Kerr Addison in 1984. Exploration carried out by AGIP in 1983 and 1984 and by Kerr Addison in 1985 and 1986 consisted of geological mapping, prospecting, geochemical sampling and some trenching. Kerr Addison dropped their option at the end of 1986. Pacific Trans-Ocean Resources Ltd. optioned the claims in 1987 and carried out a small geochemical sampling and trenching program in 1987. Four trenches were dug upslope from the plotted location of a gold

soil anomaly found by Kerr Addison in 1986. All samples collected from the trenches returned precious metal values at or near background levels. Talus fine samples were then collected in an effort to relocate the Kerr Addison soil anomaly. Five talus fine samples collected northeast of the original Kerr Addison plotted locations returned anomalous gold values. The 1988 exploration target was a fault contact situated upslope from the anomalous talus fine samples collected in 1987.

## REGIONAL GEOLOGY

The GLENLIVET claims are located within the Tertiary Bennett Lake caldera near the eastern margin of the Coast Plutonic Complex. The regional geology has been well described by Cairnes (1912), Wheeler (1961) and Lambert (1974) and is only summarized here.

The Coast Plutonic Complex consists of Cretaceous granitoid rocks which intrude and underlie low grade metamorphosed sediments and volcanics of the Mesozoic Whitehorse Trough and quartzites, schists and gneisses of the Late PreCambrian Early Paleozoic Yukon Group (Boundary Range Metamorphics). The upper most unit in the Trough consists of conglomerate belonging to the U. Jurassic to L. Cretaceous Tantalus formation. This is overlain by subaerial intermediate volcanics of the L. Cretaceous Mt. Nanson Group.

Subaerial andesite and rhyolite flows and pyroclastics of the Tertiary Skukum Group, occur in 2 isolated areas in the region. The 2 isolated areas: Mt. Skukum and Bennett Lake, have been interpreted to represent paleovolcanic centers (Lambert, 1974, Doherty pers comm, 1982 and Pride, 1985). A well developed ring fracture and dyke system is associated with the Bennett Lake caldera (Lambert, 1974). Several late stage rhyolite and andesite dykes and plugs related to the volcanics, cut the Skukum Group volcanics and underlying rocks.

The regional structural trend is northwest. Later Tertiary structures trend predominantly north, northeast and eastward.

## PROPERTY GEOLOGY

Very little geological mapping was carried out on the property during the 1988 season. The following is summarized from Lambert (1974) and from Kerr Addison's work (Pautler, 1986).

The GLENLIVET property is located on the northeastern side of the Bennett Lake caldera complex. It is underlain by Tertiary volcanic rocks which unconformably overlie Cretaceous granodior-

ite and Yukon group metasediments (Figure 3).

The granodiorite is medium grained and contains 10-20% biotite and hornblende. It outcrops at lower elevations, in the central, eastern and northern parts of the property and is highly fractured and hematitized near the volcanic contact. Yukon Group metasedimentary rocks consist of quartzite, phyllite and gneiss. They occur in isolated exposures on the northern part of the claims.

According to Lambert (1974), the claims are underlain by five distinct volcanic units. The lowermost unit consists of andesite and dacite tuff, lapilli tuff and breccia. These are overlain by rhyodacite welded tuffs. Andesite breccia and tuffs with associated epiclastics overlie the rhyodacite. The andesite breccia and tuffs border the eastern margin of the Scarlet zone rhyolite plug. The uppermost unit consists of a mixture of rhyolite and andesite tuffs with some rhyolite flows. The volcanics are intruded by rusty weathering rhyolite (locally spherulitic) dykes, plugs and sills. The rhyolite plugs weather to form large gossan areas (eg. Scarlet zone).

Several northwest and north-south trending faults cut all units on the property. The faults have been interpreted by Lambert (op cit) to be related to an eruptive center located west of the claims.

#### **MINERALIZATION and ALTERATION**

The Scarlet zone is situated in the northeast part of the GLENLIVET claim block and consists of a large (approximately 600 by 600 meters) bright orange-red weathering pyritized and sericitized rhyolite plug with associated dykes. The plug is cut by several north and northwest trending faults with associated clay gouge and quartz and chalcedony stringers. Most of the vein zones are small with no economic potential. The After-Eight zone and other fault zones were described in previous reports (Pautler, 1986; Garagan, 1987).

A north-northwest fault contact between the Scarlet zone rhyolite plug and older volcanic breccias is located on the east side of the Scarlet zone. The fault zone is filled with clay gouge which has been exposed in five trenches with an inferred strike length of at least 42 meters. The clay gouge and associated clayey soil is anomalous in gold and silver.

## EXPLORATION

### Introduction

Exploration on the GLENLIVET claims consisted of the hand digging of 5 trenches. A total of 46 soil samples and 8 rock samples were collected from or near the trenches. Most of the samples were analysed for gold and silver by Barringer-Magenta of Calgary, Alberta. Four of the soil samples and two of the rock samples were analysed for gold, silver, arsenic, antimony, copper, lead, zinc and mercury by Bondar-Clegg Lab of Vancouver, B.C. The results and analytical methods are given in Appendix A and the sample locations and gold and silver results are plotted in Figure 4.

### Trenching

Five trenches were hand dug by Aurum personnel between August 18 and August 25, 1988. The trenches are situated in a small saddle on a steep northeast-southwest trending ridge. The saddle overlies a north to northwest trending fault contact between a bright orange-red weathering rhyolite plug and older volcanic breccias and conglomerates. The trenches trend east-west to northeast-southwest. Trench 88-1 is the only trench situated on the saddle. Trenches 88-3 and 88-4 are on a steep southeast facing talus slope and trenches 88-2 and 88-5 are on a north facing talus slope. A total of 32.6 cubic meters of dirt, clay and rock were removed from the trenches. No permafrost was encountered despite the presence of permanent snow patches near the trenches. Subcrop was exposed in Trench 88-4. Kerr Addison sample flag Y6-5J46R and Aurum sample flag 7660094 were found nearby.

A zone of clay gouge was exposed in all 5 trenches. The clay zone is 2 to 4 meters wide and has at least 42 meters of strike length. The clay is pale greenish white and contains abundant small (<1 cm) angular to subangular pale greenish white rock fragments. The rock fragments exhibit varying degrees of decomposition from rock to clay. The greenish white clay gouge contains bands, streaks and pods of dark rust-orange clay and more rarely, a dark green chlorite rich clay. The clay is very sticky and dries to a fine, white powder. The clay zone grades to a clayey, medium brown, B horizon soil on both sides. Dark brown-maroon-green volcanic breccia outcrop and talus occurs on the east side of the clay zone. Altered rhyolite occurs on the west side. Subcrop pattern of the fault zone suggests a steep eastward dip.

Soil samples were collected from the bottom (average depth is 1 meter) of the trenches at 1 meter intervals. Eighteen soil

samples carried values of at least 50 ppb gold and thirteen soil samples returned values of at least 3.0 ppm silver. Seven of the anomalous samples are from the clay zone, eight are from the rhyolite side of the clay zone and three are from the volcanic breccia side.

Two soil samples from the west end of Trench 88-2 contained 3220 ppb gold/7.18 ppm silver and 1900 ppb gold/5.39 ppm silver. Repeat analysis of the same two samples returned values of 2300 ppb gold/6.23 ppm silver and 1300 ppb gold/4.56 ppm silver. The two soil samples consisted of light brown clayey soil with up to 40% rock fragments. Four additional soil samples were collected two weeks later from the same sample sites and were submitted to Bondar-Clegg for analysis. The additional sampling was hampered by the presence of ice in the trench. The two highest values were 811 ppb gold/5.3 ppm silver and 995 ppb gold/3.0 ppm silver. One of these two samples was collected from a clay layer 30 cm below the trench bottom; the other was from brown clayey to sandy soil.

Geochemical results from rock samples were low. A sample of altered quartz-eye rhyolite (822-0003) containing dark grey quartz stockwork returned values of 62 ppb gold and 6.8 ppm silver.

#### CONCLUSIONS AND RECOMMENDATIONS

The GLENLIVET claims are underlain by Tertiary rhyolite and andesite volcanics of the Bennett Lake caldera complex. The volcanics are intruded by several rhyolite plugs and dykes. Several north-south and northwest trending faults cut all units on the property. Many of the faults have associated clay alteration zones with some quartz, fluorite and gypsum veining.

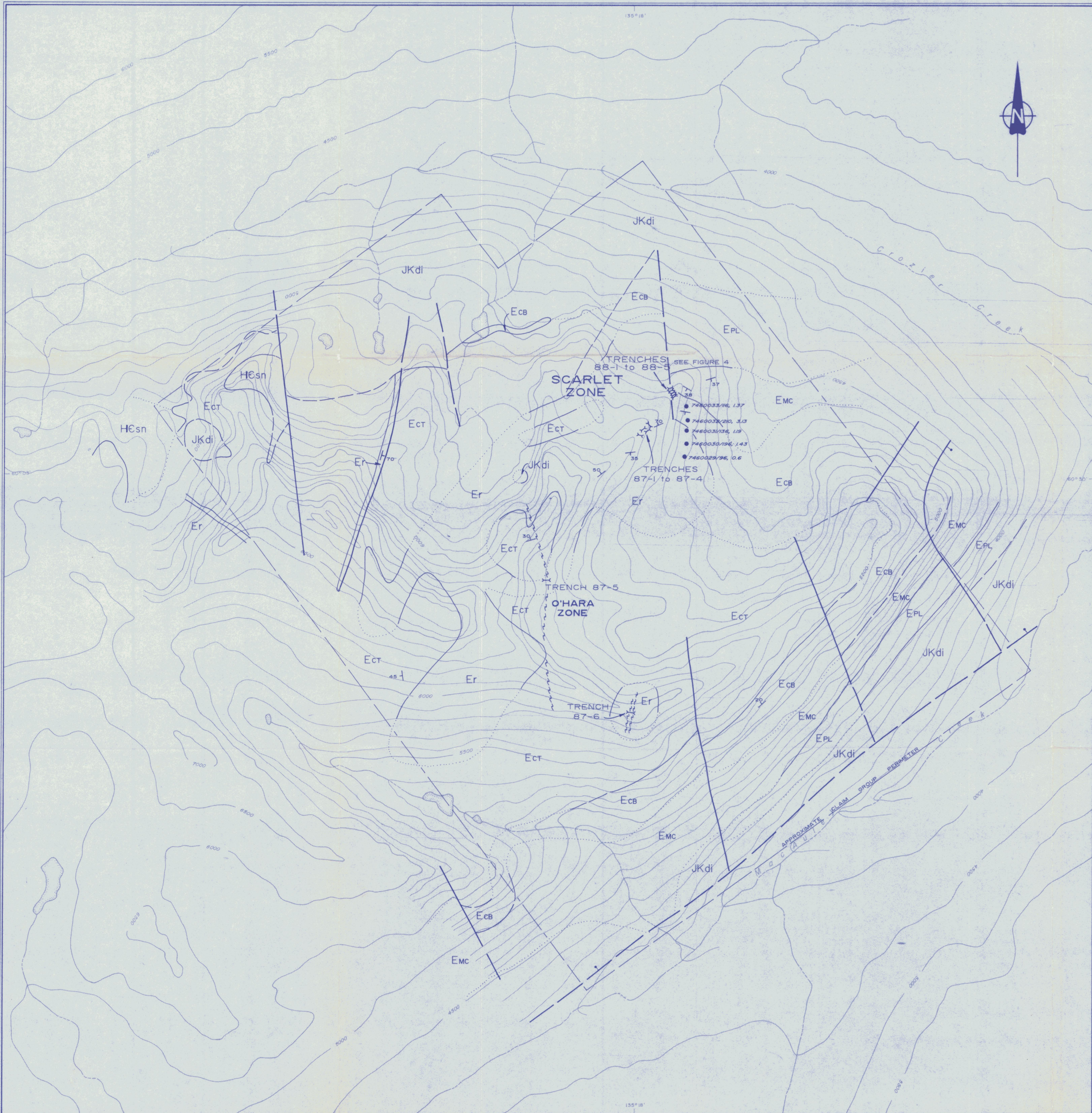
The Scarlet zone consists of a 600 meter by 600 meter deep red to orange weathering sericitized rhyolite plug cut by northwest and north-south trending faults. Several small quartz-chalcedony veins and breccias occur throughout the plug. These veins do not appear to be mineralized. Soil samples collected from 5 trenches dug over a north-northwest trending fault contact between a rhyolite plug and volcanic breccias contain anomalous precious metal values. Two samples returned values over 1000 ppb gold and several samples contained over 100 ppb gold. A clay gouge zone, 2-4 meters wide, and at least 42 meters long was exposed during trenching. The clay gouge zone appears to be the source of the downslope talus fine gold anomalies.

Results of trench sampling warrant a follow up surface program during the 1989 season. This program would involve geological mapping, prospecting, further soil sampling and ground geophysics to extend the strike length of the structure and to locate zones of mineralization within the structure. Further trenching would also have to be carried out to satisfy assessment requirements. Should the results of the initial program prove encouraging, a short diamond drill program should be carried out. The following budget would be required for the initial program.

Geology	\$ 6,000
Geochemistry	3,000
Geophysics	3,000
Trenching	5,000
Helicopter	5,000
Camp Costs (fly camp)	3,000
Field Supplies	500
Rentals	500
Report Writing	2,500
Assessment fees	<u>500</u>
Subtotal	\$ 24,000
Contingency (plus 10%)	<u>2,400</u>
<b>TOTAL</b>	<b>\$ 26,400</b>

## REFERENCES

- Cairnes, D.D., 1912: Wheaton District, Yukon Territory, G.S.C. Memoir 31.
- Garagan, T., 1987: Geochemical and Trenching Report on the GLENLIVET 1 to 46 Claims, Whitehorse Mining District, Aurum Geological Consultants Inc., Company and Assessment Report.
- Lambert, M.B., 1974: The Bennett Lake Cauldron Subsidence Complex, British Columbia and Yukon Territory, G.S.C. Bulletin 227.
- Pautler, J., 1986: Geological and Geochemical Report on the GLENLIVET claims, 105D/3, Kerr Addison Mines Ltd. Company and Assessment Report.
- Pride, M.J., 1985: Preliminary Geological Map of the Mt. Skukum Volcanic Complex, 105D 2,3,4,5. Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, O.F. 1:25,000 scale map
- Wheeler, J.O., 1961: Whitehorse Map Area, Yukon Territory, 105D. Memoir 312.

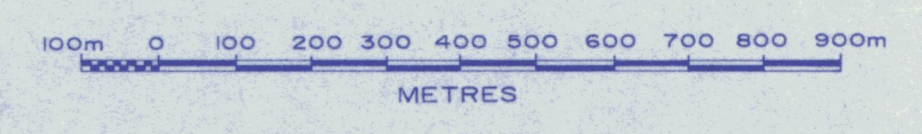


- ### LEGEND
- #### LITHOLOGIES
- TERTIARY**  
**EOCENE**  
*BENNETT LAKE CALDERA COMPLEX:*
- Er rhyolite dykes
  - Ect CROZIER tuffs and lavas
  - Ecb CROZIER breccias
  - Emc MacCauley Creek Formation
  - Epl Partridge Lake Formation
- UPPER JURASSIC & CRETACEOUS**  
JKdi FENWICK CREEK diorite
- PALEOZOIC and Older**  
HCsn gneiss, schist

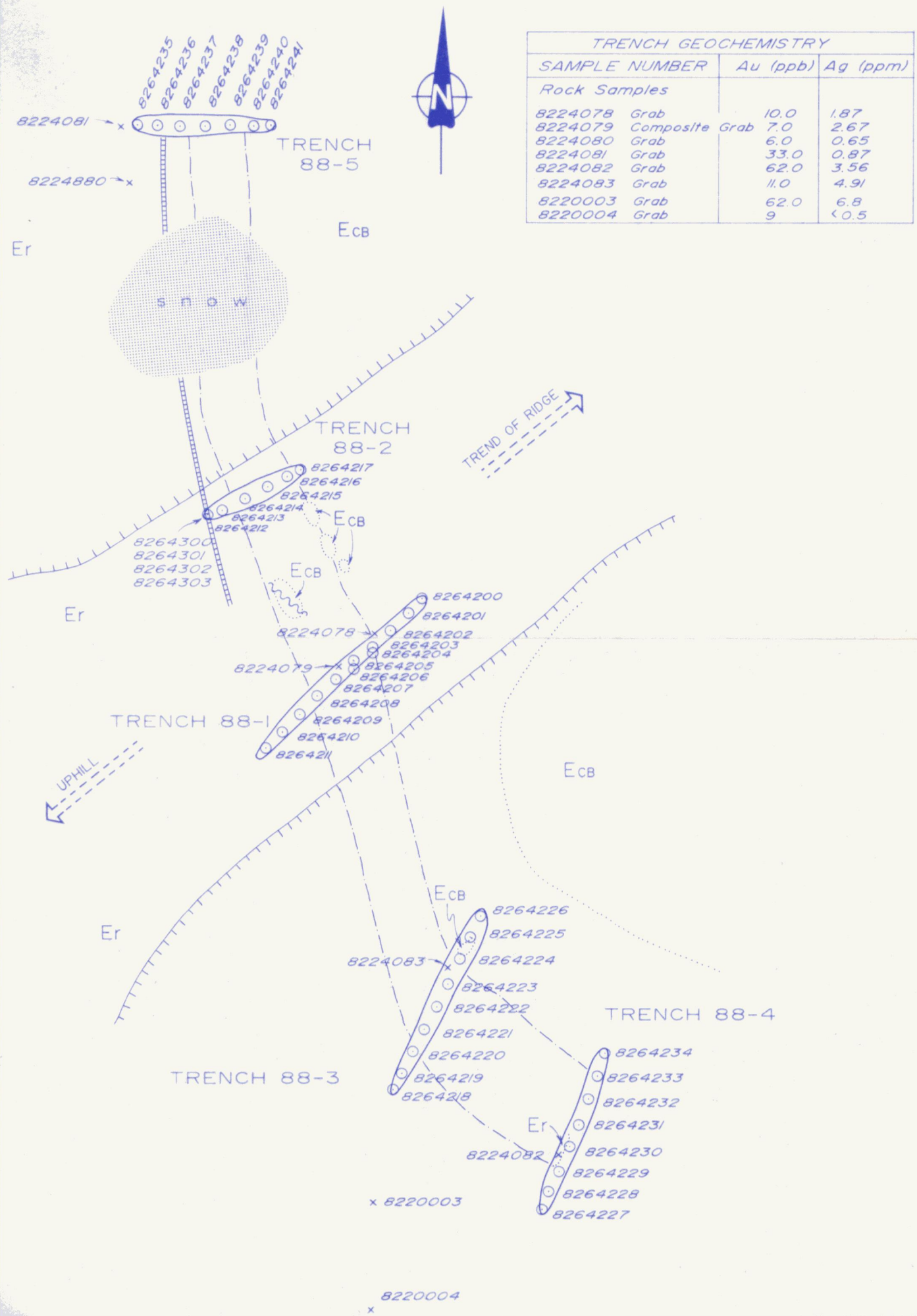
- #### SYMBOLS
- geological contact (defined, approximate assumed)
  - bedding (inclined)
  - fault (defined, approximate)
  - fault (solid circles on downthrown side)
  - fault (from 1987 report)
  - trench location
  - talus fine sample location (1987 report) sample number/Au ppb, Ag ppm
  - lake, creek
  - elevation contour, interval 100ft

**NOTES:**

- Claims location and base from Kerr Addison, 1986
- Trench location (1987) from Aurum, 1987
- Geology adapted from:  
 Doherty, R.A. and Hart, C.J.R., 1988, Preliminary Geological Map of Fenwick Creek Map Area (105 D/3) - Open File 1988-2: Indian and Northern Affairs Canada, Exploration and Geological Services Division, Yukon Region.
- Lambert, M.B., 1974, The Bennett Lake Caldera and Subsidence Complex, British Columbia and Yukon Territory; Geological Survey of Canada Bulletin 227

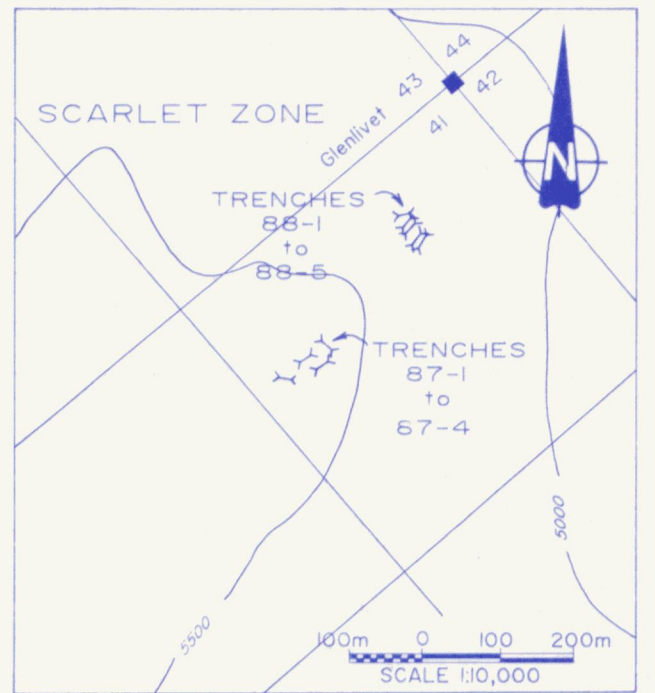


PACIFIC TRANS - OCEAN RESOURCES LTD.			
GLENLIVET CLAIMS WHITEHORSE MINING DISTRICT			
GEOLOGY		831	
&			
TRENCH LOCATIONS		092618	
Aurum Geological Consultants Inc.			SEPTEMBER, 1988
NTS 105 D/3	DRAWN BY LW	SCALE 1:10,000	FIGURE: 3



TRENCH GEOCHEMISTRY			
SAMPLE NUMBER		Au (ppb)	Ag (ppm)
<i>Rock Samples</i>			
8224078	Grab	10.0	1.87
8224079	Composite Grab	7.0	2.67
8224080	Grab	6.0	0.65
8224081	Grab	33.0	0.87
8224082	Grab	62.0	3.56
8224083	Grab	11.0	4.91
8220003	Grab	62.0	6.8
8220004	Grab	9	<0.5

TRENCH GEOCHEMISTRY			
SAMPLE NUMBER		Au (ppb)	Ag (ppm)
<i>Soil Samples</i>			
TRENCH 88-1			
8264200		10.0	1.54
8264201		3.0	1.12
8264202		2.0	0.87
8264203		5.0	3.29
8264204		62.0	1.72
8264205		29.0	2.92
8264206		58.0	2.30
8264207		31.0	5.31
8264208		34.0	6.34
8264209		6.0	1.86
8264210		7.0	3.94
8264211		38.0	1.75
TRENCH 88-2			
8264212		3220.0	7.18
8264213		1900.0	5.39
8264214		47.0	0.57
8264215		28.0	1.95
8264216		3.0	0.08
8264217		4.0	0.02
8264300		288	<0.5
8264301		811	5.3
8264302		995	3.0
8264303		38	<0.5
TRENCH 88-3			
8264218		260.0	2.46
8264219		130.0	1.38
8264220		479.0	2.47
8264221		40.0	3.23
8264222		207.0	1.18
8264223		85.0	3.29
8264224		81.0	6.82
8264225		90.0	4.38
8264226		13.0	1.71
TRENCH 88-4			
8264227		74.0	3.59
8264228		81.0	2.90
8264229		45.0	3.08
8264230		184.0	3.22
8264231		238.0	2.65
8264232		31.0	1.52
8264233		29.0	0.61
8264234		194.0	1.56
TRENCH 88-5			
8264235		30.0	0.22
8264236		237.0	1.58
8264237		112.0	2.03
8264238		14.0	0.96
8264239		3.0	0.39
8264240		4.0	0.25
8264241		7.0	0.58



- LEGEND**
- LITHOLOGIES**
- TERTIARY
  - EOCENE
  - Er** BENNETT LAKE CALDERA COMPLEX rhyolite dykes
  - Ecb** CROZIER BRECCIA volcanic breccia
- SYMBOLS**
- 8264200 soil sample location
  - x 8224080 rock (float) sample location
  - area of outcrop
  - ▬ ridge
  - ▬ topographic depression
  - ▬ clay gouge
  - ▬ shear

**VOLUME**

TRENCH 88-1	10m x 1m x 1m =	10 cubic metres
TRENCH 88-2	5m x 0.8m x 0.7m =	2.8 cubic metres
TRENCH 88-3	8m x 1m x 1m =	8.0 cubic metres
TRENCH 88-4	7m x 1m x 1m =	7.0 cubic metres
TRENCH 88-5	6m x 0.8m x 1m =	4.8 cubic metres



\* NOTE: - rock units from Doherty, R.A. and Hart, C.J.R., 1988

PACIFIC TRANS - OCEAN RESOURCES LTD.

GLENLIVET CLAIMS  
WHITEHORSE MINING DISTRICT

**SCARLET ZONE**  
TRENCHES 88-1 to 88-5  
GEOCHEMISTRY  
**092618**

Aurum Geological Consultants Inc. SEPTEMBER, 1988

NTS I05 D/3 DRAWN BY LW SCALE 1:200 FIGURE: 4

APPENDIX A  
ANALYTICAL METHODS, RESULTS  
and  
SAMPLE DESCRIPTIONS



4200B - 10 STREET N.E.  
CALGARY, ALBERTA  
T2E 6K3  
PHONE: (403) 250-1901

November 10, 1987

Mr. Tom Garagan,  
Aurum Consultants Ltd.,  
#4, 707 - 3 Ave. N.W.,  
Calgary, Alberta

Dear Tom,

Enclosed please find summaries of the methods used for the analysis of your rock and soil samples submitted during 1987.

If you have any questions, or require further information, please do not hesitate to contact me.

Yours truly,  
BARRINGER MAGENTA LABORATORIES (ALBERTA) LTD.



C. Douglas Read,  
President

CDR/lf

#### ANALYSIS OF ARSENIC:

A 0.500 gram aliquot of sample is leached in 6M HCl and the final volume adjusted. The arsine gas is passed through a lead acetate scrubber and complexed with silver DDC in chloroform, which is then measured on a Spectronic 88 Colorimeter with freshly prepared standards.

The detection limit is 1ppm.

For rock samples, the sample is decomposed with pyrosulphate fusion prior to leaching in HCl.

#### ANALYSIS OF MERCURY:

A 0.200 gram sample is digested in nitric and sulphuric acids for 3½ hours. After cooling and adjusting the final volume, an aliquot is removed and added to stannous chloride. The mercury vapor evolved is measured on a Varian Techtron atomic absorption spectrometer.

The detection limit is 5 ppb.

#### ANALYSIS OF ANTIMONY

A 0.500 gram aliquot of sample is leached in 8M HCl and the final volume adjusted. A portion of solution is removed and the antimony is extracted with methyl iso-butyl ketone. The antimony is measured by atomic absorption with freshly prepared standards.

The detection limit is 5 ppm.

For rock samples, the sample is decomposed with a pyrosulfate fusion prior to leaching with HCl.

#### GEOCHEMICAL ANALYSIS OF GOLD AND SILVER BY FIRE ASSAY AND ATOMIC ABSORPTION

(The detection limit for gold is 2 ppb)

A one assay-ton (29.16 grams) sample is mixed with the standard charge and an aliquot of known concentration of palladium. The palladium acts as an inquant to enhance the collection of small amounts of gold. Following cupellation, the dore bead is completely dissolved in aqua regia. The gold is extracted into methyl isobutyl ketone (MIBK) and subsequently analysed by atomic absorption spectrophotometry (A.A.S.)

Silver may be determined by direct aspiration of the solution by A.A.S. prior to the extraction stage.

The detection limit for silver is 10 ppb.

## CONVENTIONAL GRAVIMETRIC ASSAY OF GOLD AND SILVER

(The detection limit for gold is 0.003 ounces per ton)

1. Flux by adding 77 grams of general flux to 30 gram crucible.
2. Roll sample with rolling cloth 20 times.
3. Weigh 1 A.T. (29.166 grams)
4. Mix charge.
5. Add 1ml AgNO<sub>3</sub> solution to charge.  
(1 ml AgNO<sub>3</sub> solution contains 2 mg of Ag)
6. Cover mixed charge with borax or flux.
7. Fuse charge for 35-40 minutes in gas furnace at 900°C.
8. Pour charge into mould and cool.
9. Remove all slag from lead button with hammer (pound lead square).
10. Preheat cupel (bone ash cupel) in electric furnace for about 15 to 20 minutes. Then put lead square into cupel. The cupellation temperature should be 850°C.
11. After cupellation is complete, remove from furnace and transfer dore (the gold and silver bead) to a porcelain parting cup (size 00 Coors porcelain crucible.)
12. Flatten and clean core by using hammer.
13. Weigh dore on gold balance.
14. Subtract dore weight of blank from sample dore weight.
15. Fill porcelain cup containing dore with 10 ml parting acid (1 part HNO<sub>3</sub>:5 parts distilled water) and heat over low temperature hot plate until parting action has ceased (about 15 minutes at 85°C).
16. Decant off parting acid and wash gold with distilled water three times.
17. Dry the crucible and gold on hot plate.
18. The crucible is then heated to a bright red in an open flame

to anneal the gold. When complete, the gold will be gold coloured.

19. Weigh the gold on a gold balance.
20. The difference in weight is the silver assay and the final weight is the gold assay.

## **Analysis of Lead, Zinc, Copper, Manganese and Iron**

A 0.250 gram sample is digested in nitric and perchloric acids for 4 hours. After diluting to a final volume, the solution is analysed for lead, zinc, copper, manganese and iron by atomic absorption spectrometry. The detection limit is 1 ppm.

Bondar-Clegg & Company Ltd.  
 130 Pemberton Ave.  
 North Vancouver, B.C.  
 V7P 2R5  
 (604) 985-0681 Telex 04-352667



Geochemical  
 Lab Report

REPORT: V88-116892.11 ( COMPLETE )

REFERENCE INFO: X

CLIENT: AURUM GEOLOGICAL CONSULTANTS INC.  
 PROJECT: 1102-7500

SUBMITTED BY: I. WATSON  
 DATE PRINTED: 26-SEP-88

ORDER	ELEMENT	NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Au 30g Gold 30 grams	8	5 PPM	FIRE-ASSAY	Fire Assay AA
2	Ag Silver	8	0.5 PPM	HNO3-HCl HOT EXTR	PLASMA EMISSION SPEC
3	As Arsenic	8	5 PPM	HNO3-HCl HOT EXTR	PLASMA EMISSION SPEC
4	Cu Copper	8	1 PPM	HNO3-HCl HOT EXTR	PLASMA EMISSION SPEC
5	Mo Molybdenum	8	1 PPM	HNO3-HCl HOT EXTR	PLASMA EMISSION SPEC
6	Pb lead	8	5 PPM	HNO3-HCl HOT EXTR	PLASMA EMISSION SPEC
7	Sb Antimony	8	5 PPM	HNO3-HCl HOT EXTR	PLASMA EMISSION SPEC
8	Zn Zinc	8	1 PPM	HNO3-HCl HOT EXTR	PLASMA EMISSION SPEC
9	Hg Mercury	8	5 PPM	HNO3-HCl HOT EXTR	Cold Vapour AA

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
S SOILS	4	1 -80	4	DRY, SIFVE -80	4
R ROCK OR (HD) ROCK	4	2 -150	4	CRUSH AND SPLIT GEOCHEM PULVERTZING	4

REPORT COPIES TO: AURUM GEOLOGICAL

INVOICE TO: AURUM GEOLOGICAL



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 T2E 6K3  
 PHONE: (403) 250-1901

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 PROJECT: 1102

AUTHORITY: P. MAHEUX

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 HANGAR B  
 WHITEHORSE, YUKON  
 ATTN: P. MAHEUX

WORK ORDER: 5284D-88  
 \*\*\* FINAL REPORT \*\*\*

**GEOCHEMICAL LABORATORY REPORT**

**SAMPLE TYPE: SOIL**

S A M P L E N U M B E R	FIRE ASSAY	FIRE ASSAY
	AU PPB	AG PPM
8264200	10.0	1.54
8264201	3.0	1.12
8264202	2.0	0.87
8264203	5.0	3.29
8264204	62.0	1.72
8264205	29.0	2.92
8264206	58.0	2.3
8264207	31.0	5.31
8264208	34.0	6.34
8264209	6.0	1.86
8264210	7.0	3.94
8264211	38.0	1.75
8264212	3220.0	7.18
8264213	1900.0	5.39
8264214	47.0	0.57
8264215	28.0	1.95
8264216	3.0	0.08
8264217	4.0	0.02
8264218	260.0	2.46
8264219	130.0	1.38
8264220	479.0	2.47
8264221	40.0	3.23
8264222	207.0	1.18
8264223	85.0	3.29
8264224	81.0	6.82
8264225	90.0	4.38
8264226	13.0	1.71
8264227	74.0	3.59
8264228	81.0	2.9
8264229	45.0	3.08

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AUTHORITY: P. MAHEUX

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 HANGAR B  
 WHITEHORSE, YUKON

ATTN: P. MAHEUX

WORK ORDER: 52840-88  
 \*\*\* FINAL REPORT \*\*\*

**GEOCHEMICAL LABORATORY REPORT**

SAMPLE TYPE: SOIL

S A M P L E N U M B E R	FIRE ASSAY	FIRE ASSAY
	AU PPB	AG PPM
8264230	184.0	3.22
8264231	238.0	2.65
8264232	31.0	1.52
8264233	29.0	0.61
8264234	194.0	1.56
8264235	30.0	0.22
8264236	237.0	1.58
8264237	112.0	2.03
8264238	14.0	0.96
8264239	3.0	0.39
8264240	4.0	0.25
8264241	7.0	0.58



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 WHITEHORSE, YUKON

ATTN: P. MAHEUX

WORK ORDER: 52840-88  
 \*\*\* FINAL REPORT \*\*\*

**GEOCHEMICAL LABORATORY REPORT**

SAMPLE TYPE: ROCK

S A M P L E N U M B E R	FIRE ASSAY	
	AU PPB	AG PPM
128399	2.0	0.32
128400	<2.0	0.38
128401	3.0	0.57
128402	<2.0	0.31
128403	2.0	0.39
SAID-THC 128404	2.0	0.46
ODH 88-04 128405	2.0	0.42
128406	<2.0	0.47
128407	<2.0	0.16
128408	2.0	0.03
128409	14.0	0.15
128410	4.0	0.72
128411	3.0	0.02
SAID-THC 128412	3.0	0.21
ODH - 88-7 128413	56.0	0.45
128414	3.0	0.39
128415	2.0	0.3
128416	4.0	0.12
128417	3.0	0.12
128418	2.0	0.38
+ 128419	3.0	0.62
Glenlivet 8224078	10.0	1.87
8224079	7.0	2.67
8224080	6.0	0.65
8224081	33.0	0.87
8224082	62.0	3.56
8224083	11.0	4.91



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AUTHORITY: P. MAHEUX

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WHITEHORSE, YUKON  
  
ATTN: P. MAHEUX

WORK ORDER: 52840-88  
\*\*\* FINAL REPORT \*\*\*

**GEOCHEMICAL LABORATORY REPORT**

SIGNED: \_\_\_\_\_

*C. Douglas Read*  
C. Douglas Read,  
LABORATORY MANAGER

ORIGINAL TO:  
AURUM GEOLOGICAL CONSULTANTS  
VANCOUVER, B.C. V6B 1N2  
T. GARAGAN

**FOOTNOTES:**

P=QUESTIONABLE PRECISION; \* = INTERFERENCE; TR=TRACE; ND=NOT DETECTED;  
IS=INSUFFICIENT SAMPLE; NA=NOT ANALYZED; MS=MISSING SAMPLE

**BARRINGER**

**Laboratories (Alberta) Ltd.**

4200B - 10 STREET N.E., CALGARY, ALBERTA, CANADA T2E 6K3  
PHONE: (403) 250-1901

**BARRINGER**

**Laboratories (NWT) Ltd.**

P.O. BOX 864, YELLOWKNIFE, NWT, CANADA X1A 2N6  
PHONE: (403) 920-4500

AUTHORITY: P. MAHEUX

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**AURUM CONSULTANTS LTD.**

P.O. BOX 5179  
WHITEHORSE, YUKON

ATTN: P. MAHEUX

WORK ORDER: 02840-88

\*\*\* FINAL REPORT \*\*\*

**GEOCHEMICAL LABORATORY REPORT**

SAMPLE TYPE: SOIL

S A M P L E N U M B E R		FIRE ASSAY	FIRE ASSAY
		AU PPB	AG PPM
8264212	-REPEAT	2300.0	6.23
8264213	-REPEAT	1300.0	4.56

SIGNED: \_\_\_\_\_

*C. Douglas Read*  
C. Douglas Read,  
LABORATORY MANAGER

ORIGINAL TO:  
AURUM GEOLOGICAL CONSULTANTS  
VANCOUVER, B.C. V6B 1N2  
T. GARAGAN

FOOTNOTES:

P=QUESTIONABLE PRECISION; \* = INTERFERENCE; TR=TRACE; ND=NOT DETECTED;  
IS=INSUFFICIENT SAMPLE; NA=NOT ANALYZED; MS=MISSING SAMPLE



REPORT: V88-H6892.0

PROJECT: 1102-75000

PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Au 3lg PPM	Ag PPM	As PPM	Cu PPM	Mo PPM	Pb PPM	Sb PPM	Zn PPM	Hg PPB
Glenloch	S1 8264300	288	<0.5	90	7	8	92	<5	166	35
	S1 8264301	811	5.3	135	4	9	58	<5	34	25
	S1 8264302	995	3.0	132	4	11	68	6	83	10
	S1 8264303	38	<0.5	55	4	7	62	<5	150	10
	R2 8220003	62	6.8	400	22	3	18	<5	8	15
Earl	R2 8220004	9	<0.5	33	145	5	24	5	13	<5
	R2 8224100	240	<0.5	1410	39	2	27	5	29	5
	R2 8224101	144	3.9	65	21	8	1234	6	10	5

Date: August 18, 1988Project: Glanlivet Claims, PTD-Bennet LakeArea: Scarlet ZonePage 1 of 1

Sample No.	Location	Description	Attitude	Width	Analytical Results	
					Au ppb	Ag ppm
822-4078	Trench 88-1, 2m west; 1.3m depth	Medium green altered volcanic breccia with unusually thick silvery manganese oxide coating.		float 10 by 6cm	10	1.87
822-4079	Trench 88-1	Rock frags in clay gouge zone. Rx frags are pale greenish white, aphanitic & exhibit varying degrees of decomposition.		comp grab	7	2.67
822-4080	near Trench 88-5	White gray weathering, rhyolite 5-10% lim- onite coating. Thinly laminated quartz flow banding & small (<1mm) quartz eyes; local brecciation.		float 9 by 5cm	6	0.65
822-4081	Trench 88-5 west end	Intensely weathered very fine grained cream volcanic rx with limonite specks & <1% very fine grained disseminated pyrite. Thick Mn oxide coating.		float 6 by 6cm	33	0.87
822-4082	Trench 88-4	Partially decomposed light green-white- rust weathering volcanic rx. Fresh surface is aphanitic, light greenish grey & con- tains very thin threadlike dk grey quartz veinlets.		float 30 by 30cm	62	3.56
822-4083	Trench 88-3	Mottled maroon-br/maroon grey weathering volcanic breccia, fresh surface is light greyish green with dk green spots (chlorite). 1-2% disseminated very fine grained pyrite. Angular volcanic frags of variety of rx types (granitic-volcanics).		float 10 by 15cm	11	4.91
822-0003	West side Trench 88-4	Light cream-grey-white-rust weathering altered quartz eye rhy with threadlike veinlets of dk grey quartz comprising 2% of rx. <1% disseminated pyrite in rhy. Orange along fractures & outside surface.			62	6.8
822-0004	West side Trench 88-4	Cream/rust weathered rhy; fresh surface altered. Brecciated by dk grey quartz comprising 5% of rx.			9	<0.5

APPENDIX B  
STATEMENT OF QUALIFICATIONS

## STATEMENT OF QUALIFICATIONS

I, LORI A. WALTON with business address:

Aurum Geological Consultants Inc.  
604 675 West Hastings Street  
Vancouver, B.C.

do hereby certify that:

1. I am a practicing geologist.
2. I hold a Bachelor of Science (Specialization) Degree (1982) from the University of Alberta.
3. I hold a Master of Science Degree (1987) from the University of Alberta.
4. I am a member of the Yukon Professional Geoscientists Society.
5. I have been working in the field of mineral exploration since May of 1980.
6. I have no interest in the claims nor do I expect to obtain any.
5. I consent to the use of this report in a company report or statement, provided that no portion is used out of context in such a manner as to convey a meaning differing materially from that set out in the whole.

DATED at Whitehorse, Yukon, this 21 day of November 1988.

*Lori Walton*

Lori A. Walton, M.Sc.

APPENDIX C  
STATEMENT OF COSTS

**STATEMENT of COSTS  
Glenlivet Trenching**

\* Note: All trenches are in GLENLIVET claim 41.

**1. Labour:**

Hand trenching and trench sampling done by Aurum personnel between August 18 and August 25, 1988.

L. Walton (6 mandays @ \$240/day)	\$ 1,440.00
D. Paul (1 manday @ \$220/day)	220.00
C. Hood (6 mandays @ \$160/day)	960.00
R. Young (6 mandays @ \$160/day)	960.00
M. Schaffeler (2 mandays @ \$120/day)	<u>240.00</u>

Total Labour Costs           \$ 3,820.00

**2. Geochemistry:**

Barringer-Magenta Lab

Forty-two soil samples for Au, Ag analysis @ \$9.50 each	\$ 399.00
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Six rock samples for Au, Ag analysis @ \$12.25 each	\$ 73.50
--	----------

Bondar-Clegg Lab

Four soil samples (RUSH) for Au, Ag, As, Cu, Pb, Zn, Sb, Hg analysis @ \$30.75 each	\$ 123.00
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Two rock samples (RUSH) for Au, Ag, As, Cu, Pb, Zn, Sb, Hg analysis @ \$30.75 each	\$ <u>61.50</u>
---	-----------------

Total Geochemical Costs           \$ 657.00

**3. Helicopter:**

Used a Heli-Dynamics Jet Ranger 206 on contract to Aurum Geological Consultants Inc. (\$500/hr.) and a Trans North Turbo Air Hughes 500-D helicopter based at Omni Resources Skukum Creek camp.

August 18	.8 hrs @ \$500/hr	\$ 400.00
August 19	.8 hrs @ \$500/hr	\$ 400.00
August 21	.8 hrs @ \$500/hr	\$ 400.00

August 23	.8 hrs @ \$500/hr	\$ 400.00
August 24	.8 hrs @ \$600/hr	\$ 480.00
August 25	.8 hrs @ \$600/hr	\$ 480.00
Fuel:	\$0.60/Lt @ 114 Lt/hr @ 3.2 hrs	\$ 218.88
	\$0.65/Lt @ 114 Lt/hr @ 1.6 hrs	\$ 118.56
Oil:	\$2.60/hr @ 4.8 hrs	\$ <u>12.48</u>
	<b>Total Helicopter Costs</b>	<b>\$ 2,909.92</b>

4. Camp Costs:

Billed to Pacific Trans-Ocean Resources Ltd by Aurum

21 mandays @ \$60/manday	\$ <u>1,260.00</u>
<b>Total Camp Costs</b>	<b>\$ 1,260.00</b>

**Total Actual Costs of Assessment** **\$ 8,646.92**

**Total Costs Applied for Assessment** **\$ 4,600.00**