

DRILLING REPORT

Hatsoff Property

Golden Mining Division

Located 40 Km WSW of Invermere, B.C.

NTS 82 K/7E

Lat. 50°27'N

Long. 116°34'W

Owned And Operated By

Utah Mines Ltd.

Work Performed Between June 17 - September 20, 1981

Tom Pollock, M.A.Sc.  
Utah Mines Ltd.

Vancouver, B.C.  
November 9, 1981

MINERAL DEVELOPMENT BRANCH  
ASSESSMENT SECTION  
9749  
NO.

Part. 1 of 2

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### SUMMARY

The 1981 drill program on the Hatsoff Property consisted of extending a preexisting hole and drilling a new hole, both from the same collar. A total of 2133.9 meters have been drilled on the property to date of which 1432.6 meters were drilled in 1981. Both holes were drilled to test a zone of quartz-sericite-pyrite-molybdenite stockwork exposed on surface.

Although the first hole drilled (HO-1) returned discouraging results in regards to alteration and mineralization, the lower 600 meters of the second hole (HO-2) had sporadic but locally strong argillic, phyllic and potassic alteration.

## INTRODUCTION

The 1981 diamond drill program for the Hatsoff Property was carried out during the period from June 17 - September 20. During this time, a previous hole was extended and a new hole was completed. To date, two holes have been drilled from the same collar on the property.

This report will claim the major costs of this summers drill program for assessment purposes. Some of these costs include:

- 1.) direct drilling costs
- 2.) helicopter costs
- 3.) fuel costs

The following Utah Mines Ltd. personnel supervised and performed the geological work for the Hatsoff Property:

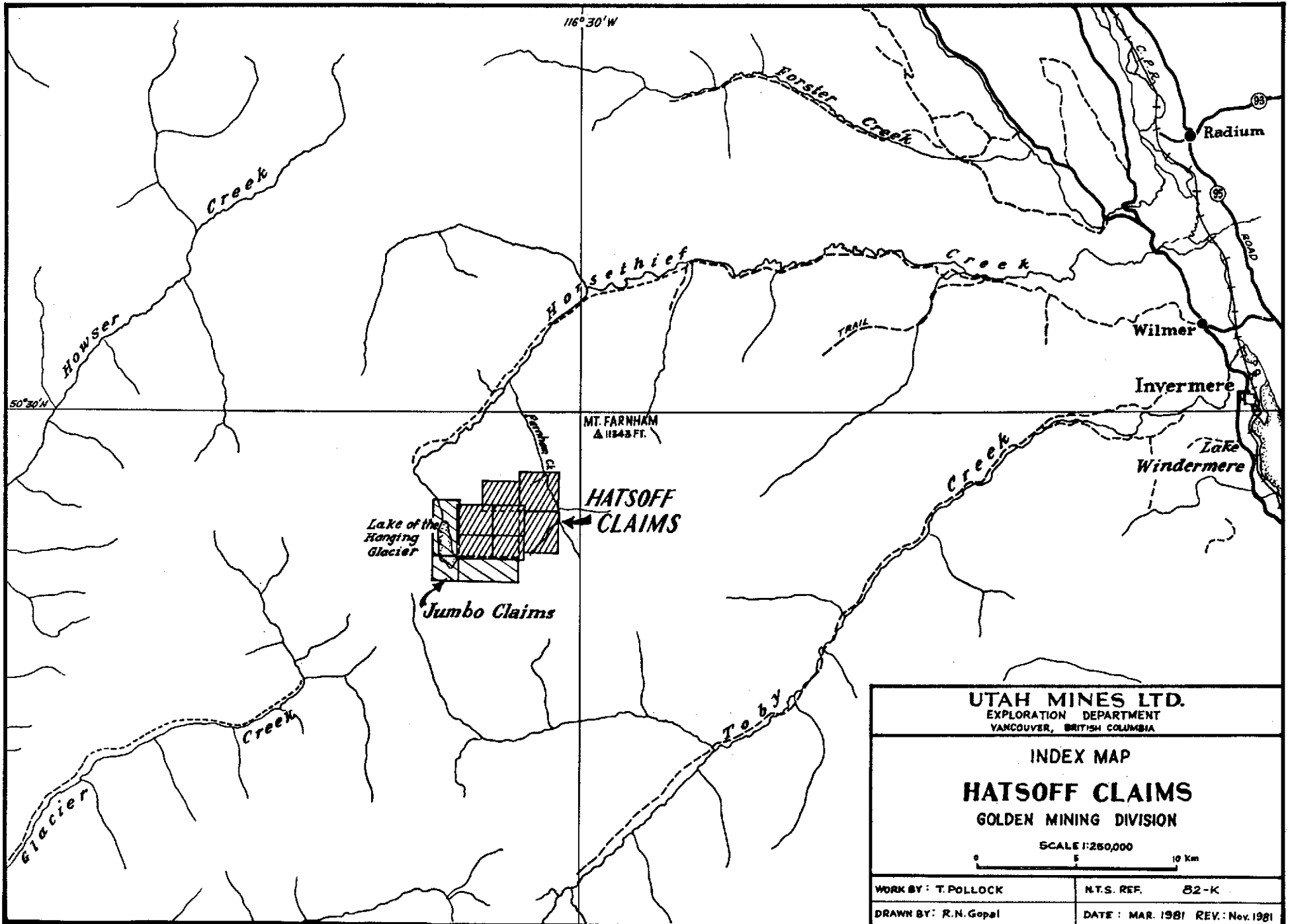
- T. Pollock - geologist
- T. Doust, J. Rybij, M. Sainas, and  
N. Schmidt - field assistants



### LOCATION AND ACCESS

The Hatsoff Property is located approximately 40 kilometers west-southwest of Invermere, B.C., in the extremely rugged and glaciated terrain of the Purcell Mountains. The property consists of ten claims (109 units) covering an area of 2414 hectares. All claims are above treeline with elevations ranging from 2200 to 3200 meters.

Access to the property is by a dirt two-wheel drive road which leaves Highway 95 at Radium and proceeds westerly and southerly along Horsethief and Farnham Creeks. Helicopter access is required for the last four kilometers from Farnham Creek to the property - a vertical distance of 1200 meters.



## HISTORY

The area was first staked as a tungsten prospect (Sec claims) by Union Carbide Ltd. After a limited examination in 1972 the claims were allowed to lapse as no assessment was filed.

In July 1978, during the course of an examination of the above tungsten prospect by Utah geologists, a molybdenum occurrence was discovered. The claims Hatsoff 1-4 totalling 30 units were staked and following this the showings were mapped at a preliminary level (scale 1:7,500).

Detailed mapping (scale 1:5,000) of the Hatsoff 1-4 claims was completed in July and August 1979 with the conclusion that the Property had good potential as a porphyry molybdenum prospect. In August 1979 Hatsoff 5-7 claims (totaling 52 units) were staked expanding the Property to the northeast towards the Farnham Creek Valley.

The reader is referred to the 1979 assessment report by B. Bowen for the geology and geochemistry of the Hatsoff Property.

Drilling on the Property began last summer where a single hole was drilled to a depth of 701.3 meters. This hole was extended to a final depth of 914.4 meters this summer in addition to a second hole drilled from the same collar

to a depth of 1219.5 meters.

Three additional claims (24 units) were staked in 1981 called the Jumbo claims. They were added to the southwest corner of the seven existing Hatsoff claims towards the direction of the Lake of the Hanging Glacier. The Property is 100% owned and operated by Utah Mines Ltd.

## DIAMOND DRILL PROGRAM

Longyear Canada Limited utilizing a Longyear "44" diamond drill performed the required drilling for this summers drill program. Drilling began on hole HO-1 on July 13 at a depth of 701.3 meters with the use of BQ drill rods. The smaller core size was necessary at depth (NQ used above 701.3 meters) to aid in the drilling process. HO-1 was terminated at 914.4 meters due to the lack of any significant mineralization or promising geology.

HO-2 was started on July 25, 1981 from the same collar as HO-1. The hole was drilled using NQ drill rods to approximately 750 meters then BQ rods were used to finish the hole at 1219.5 meters. This hole was terminated because of the lack of promising mineralization and deteriorating weather conditions.

To date two holes have been drilled on the Property totalling 2133.9 meters of which 1432.6 meters were drilled this summer. Both holes were completely contained to claim Hatsoff #2. Sperry-Sun tests were taken on average of every 300 meters in both holes to determine their attitude with depth. The two following tables give the particulars for the two holes drilled.

All the core drilled during this summer was logged in detail by a Utah Mines Ltd. geologist. After the core was logged,

it was split in half with one-half of the core returning to the core box to be stored on the property in exterior metal core racks. Of the remaining core, alternate three meter sections were sent to Chemex Labs Ltd. for analysis. The remaining three meter sections were bagged and stored in a box on the property. The wooden core boxes on the property are clearly labelled with metal tags giving the hole and box number, and the meterage contained within. The metal core racks containing a split section of the core from the two holes drilled are roughly 30 meters southeast of the collar for the two holes.

The drilling was generally in competent rock with an average core recovery greater than 95%.

Further data accompanying this drill report is found in the Appendices following the report. The data consists of the complete diamond drill logs and associated assay logs for both holes drilled, found in Appendices D and E respectively. A statement of qualifications, statement of cost and major contract invoices are given in Appendices A, B and C respectively.

Table I

Pertinent data concerning HO-1.

Co-ords (M) N.            E.	Date	Elev. (M)	Depth (M)	Dip	Azimuth
12790 12410	Aug 7/80	2930	0	-60.0°	012°
	Aug 28/80		701.3	-56.4°	031.5°
	Jul 13/81		701.3		
			792.5	-55.3°	033°
	Jul 24/81		914.4	-48.0°	039.5°

Table II

Pertinent data concerning HO-2.

Co-ords (M) N.            E.	Date	Elev. (M)	Depth (M)	Dip	Azimuth
12790 12410	Jul 25/81	2930	0	-90.0°	-
			609.6	-86.0°	026°
			914.4	-85.5°	031°
	Sept 5/81		1219.2	-85.5°	041°

## DRILL HOLE GEOLOGY

### Lithology:

Drilling to date has aided greatly in the understanding of the subsurface geology on the property.

The geology encountered in the two holes basically consists of three major rock types, two of which are quartz monzonite while the other is a quartz porphyry unit. Both quartz monzonite units are part of the Hanging Glacier Stock (Cretaceous), the coarser of which is its border phase. The stock which is roughly 1.5 km in diameter intrudes several sedimentary sequences on the property such as the Helikian Dutch Creek Formation and the basal formation of the Windermere (Hadrynian) Series.

The border phase of the Hanging Glacier Stock was intruded by a quartz porphyry plug which is exposed on surface in an oval shape measuring 150 by 300 meters. The neck of the plug is a mixture of lens shaped bodies of quartz monzonite, quartz porphyry dykes and large masses of quartz porphyry. The plug has a maximum thickness of 300 meters. The forceful intrusion of the plug is evident from the very strong fracturing in the quartz monzonite near the contact between the two rock types.

Both holes below approximately 500 meters were in the medium grained phase or the main body of the Hanging Glacier Stock.



Although HO-2 intersected over 600 meters of this stock, the rock was very consistent in texture and composition. However, the lower sections of HO-2 did show encouraging results in regards to alteration and mineralization in relation to HO-1 as described in the following two sections.

Several dyke types were intersected in both holes but their numbers were limited. The dykes present were as follows:

- 1.) feldspar-quartz-biotite porphyry
- 2.) aplite
- 3.) quartz porphyry
- 4.) quartz-feldspar porphyry
- 5.) white quartz- plagioclase dykes with disseminated molybdenum

Alteration:

The most prominent form of alteration logged in HO-1 was present as alteration envelopes associated with quartz veins. These alteration envelopes consisted of quartz, sericite and pyrite; their width being directly proportional to the width of the vein. Where there was a stockwork of veins with these envelopes in quartz monzonite, the typical salt and pepper texture of the rock was altered to a sparkly texture from 10 - 20% contained sericite content.

Weak propylitic alteration was ubiquitous in quartz monzonite whereas sericite was present in the quartz porphyry to the extent of a few percent. Secondary potassium feldspar was occasionally present in quartz veins and their alteration

envelopes in the last 200 meters of the hole.

All the alteration types logged in Ho-1 were present in HO-2 in addition to random whole sections of the rock pervasively altered to one of the following: clay, sericite-quartz-pyrite or secondary potassium feldspar. Argillic alteration characterized by the presence of clay minerals and carbonate was concentrated between 710 and 790 meters. The extent of alteration varied from very weak to strong. Argillic alteration was present below 800 meters but only in two other locations not greater than 9 meters wide.

The most important and pervasive alteration encountered in HO-2 was potassic alteration. Characterized by secondary potassium feldspar this alteration type occurred sporadically from 832 to 1158 meters. The greatest intersection of continuous potassic alteration was 26 meters. The alteration varied from secondary K-feldspar in alteration envelopes, to solid salmon pink zones of secondary K-feldspar.

The only significant section of phyllic alteration was from 1128 to 1136 meters. A majority of the rock in this section consisted of quartz, sericite and pyrite.

Locally there were some overlapping of these three alteration types over distances not greater than a meter or two.

#### Mineralization:

The best mineralization by far was intersected in the potassic

alteration zone, notably between 1068 and 1101 meters. The molybdenite occurred as disseminations where the rock was totally altered to K-feldspar, as coatings on fractures and in quartz veins. The number of quartz veins with molybdenite in this potassic zone were at least double in number over a given length compared to the rock out of this section.

Geochemical values from HO-2 in the medium grained phase of the Hanging Glacier Stock showed anomalous values in relation to the other rock types encountered in the drilling. It should be noted however that the geochemical values from HO-1 in the same medium grained phase were no higher than the surrounding units. Molybdenite present in the rock types other than the medium grained phase occurred in quartz veins commonly containing pyrite. These veins averaged less than a centimeter in width and were never present to the extent, on average, of one per meter.

No other minerals have been encountered in the drilling thus far in quantities to be considered as economic. Other minerals logged were sphalerite, fluorite, scheelite, gypsum, beryl, calcite and magnetite.

## CONCLUSIONS

The limited amount of drilling so far carried out on the Hatsoff molybdenum prospect has outlined several interesting features of the property. The most significant of these is the development of a sporadic but mappable alteration pattern.

Results from HO-2 indicate that the alteration found in the medium grained phase of the Hanging Glacier stock increases towards its center, both horizontally and vertically. HO-2 is approximately 450 meters closer to the center of the stock than the bottom of HO-1 and shows significant increases in alteration. HO-2 is still a few hundred meters east of the stock's center and so subsequent holes will be drilled in a westerly direction to test for further increases in the alteration of the stock.

Associated with the increase in potassic alteration was a significant increase in the molybdenum in the rock. Below 500 meters in HO-2, quartz veins with molybdenum were on average five times more abundant than in HO-1.

Finally, HO-2 intersected several white quartz and plagioclase dykes with considerable disseminated molybdenum. These dykes were not present in HO-1 and it is possible that they increase towards the center of the stock and lead towards a major mineralization source.

Drilling in the future will proceed towards the center of the

Hanging Glacier Stock to test for further increases in alteration and mineralization. It is believed that the property has excellent potential which can be tested only by further drilling.

APPENDIX A

STATEMENT OF QUALIFICATIONS

## STATEMENT OF QUALIFICATIONS

The field work for this report was done by the following person whose qualifications are outlined below:

T. Pollock, Geologist for Utah Mines Ltd., Vancouver, British Columbia. Completed Hon. B.Sc. (geology) at Queen's University, Kingston, Ontario in 1977; completed M.Sc.A. at McGill University, Montreal, Quebec in 1980; employed by the Ontario Geological Survey as an assistant geologist during the 1974 and 1975 summer field seasons; employed by Inco Limited as a field geologist for the 1976, 1977 and 1978 summer field seasons; employed by the Geological Survey of Canada as a geologist, December 1977 to April 1978; employed by Kelvin Energy Ltd. during the 1979 field season as a field geologist; employed by Utah Mines Ltd. from May 1980 to date as a geologist under the supervision of J.B. Richards, P. Eng.

APPENDIX B

STATEMENT OF COSTS



STATEMENT OF COSTS

	<u>Total Cost</u>	<u>Cumulative Total</u>
Longyear Canada Inc.	150,599.33	150,599.33
Shirley Helicopter	52,227.44	203,826.77
Quasar Helicopter	20,012.00	222,838.77
Okanagan Helicopter	6,778.76	229,617.53
Gulf Canada Ltd.	9,881.84	239,499.37
Eddies Fairmont Grocery	8,958.65	248,458.02
Westcoast Drilling Supplies	8,787.28	257,245.30
Mohawk Terminals Ltd.	8,483.80	265,729.10
Earl's Machine Shop Ltd.	7,500.00	273,229.10
Chemex Labs Ltd.	3,528.70	276,757.80
Miller & Brown	2,246.78	<u>279,004.58</u>

Therefore, the total value of expenditures towards the Hatsoff Property in 1981 were at least \$279,004.58.

APPENDIX C  
MAJOR INVOICES

# Longyear

9/10/81  
**RECEIVED**

**AUG 25 1981**

Utah Mines Ltd., **UTAH MINES LTD.**  
Suite 1600, **EXPLORATION DEPT.**  
1050 W. Pender St.,  
Vancouver, B.C.  
V6E 3S7

## Longyear Canada Inc.

CONTRACT DRILLING DIVISION

721 Aldford Avenue

Annacis Island, New Westminster, B.C. V3M 5P5

Telephone: 604-524-2511

Telex: 43-51280

Invoice No. 1436

Cust. No. 6051

Job No. 6292

Dest. 062

*OK J. Dechard*

Utah Hatsoff

Invoice date: August 14/81

for July 1981

To: Invoice for diamond drilling performed on Hatsoff Project near Invermere, B.C. during period July 7-14, 1981 per agreement.

Hole No.	Size	From	To	Total	Rate	Amount
H.O. 1	BQ Wireline	2301	2395	94	21.00	1,974.00
<u>Mobilization</u>						
Lump sum						2,800.00
<u>Client Charges</u>						
6 pails Polymer (HS) @ 145.60					873.60	
Direct Transportation System					421.53	
					<u>1,295.13</u>	
Plus 18%					<u>233.12</u>	1,528.25
<u>Moves</u>						
Move in to Hole H.O. 1						
44 hours @ 66.00					2,904.00	
149 hours @ 28.00					<u>4,172.00</u>	7,076.00
<u>Hole Reduction</u>						
Hole H.O. 1						
22 hours @ 66.00						1,452.00
<u>Reaming Casing, Cave and Lost Circulation)*</u>						
Hole H.O. 1						
34 hours @ 66.00					2,244.00	
1 NQ Bit SI35849					360.40	
1 NQ Shell E4470					196.10	
					<u>556.50</u>	
Plus 18%					<u>100.17</u>	
					<u>656.67</u>	2,900.67

\*Prorated diamond recovery - see  
water invoice, if applicable.

\$

17,730.92

# Longyear

**RECEIVED**  
AUG 31 1981

**UTAH MINES LTD.  
EXPLORATION DEPT.**

Utah Mines Ltd.,  
Suite 1600,  
1050 W. Pender St.,  
Vancouver, British Columbia  
V6E 3S7

## Longyear Canada Inc.

CONTRACT DRILLING DIVISION

721 Aldford Avenue

Annacis Island, New Westminster, B.C. V3M 5P5

Telephone: 604-524-2511

Telex: 43-51280

Invoice No. 1617

Cust. No. 6051

Job No. 6292

Dest. 062

Utah Hatsoff

Invoice date: August 25, 1981

for August 1981

To: Invoice for diamond drilling performed on Hatsoff Project near Invermere, British Columbia during period July 15-August 15, 1981 per agreement.

Hole No.	Size	From	To	Total	Rate	Amount
H01	BQ Wireline	2395	2500	105	21.00	2,205.00
		2500	3000	500	23.10	11,550.00
H02	Overburden	Ø	22	22	Hourly Rate	-
		NQ Wireline	22	1500	1478	18.35
	BQ Wireline	1500	2000	500	19.45	9,725.00
		2000	2351	351	21.00	7,371.00
	2351	2493	142	21.00	2,982.00	
				3098		60,954.30

### Left in Hole

Hole H01

80 NQ 10' rods

no charge

### Reaming Casing, Cave and Lost Circulation

\*Hole H01

55 hours @ 66.00

3,630.00

1 BQ Bit GR66942

328.60

1 BQ Shell E2643

153.70

1 BQ Shell E2649

153.70

646.00

Plus 18%

114.48

750.48

4,380.48

\*Hole H02

117 hours @ 66.00

7,722.00

1 BQ Bit GR66944

328.60

1 BQ Shell E3349

153.70

482.30

Plus 18%

86.81

569.11

8,291.11

\*Prorated diamond recoveries - see later invoice

-

12,671.59



Utah Mines Ltd.  
 Invoice No. 1617  
 2...

# Longyear Canada Inc.

CONTRACT DRILLING DIVISION

721 Aldford Avenue

Agncis Island, New Westminster, B.C. V3M 5P5

Telephone: 604-524-2511

Telex: 43-51280

Client Work and Testing

Hole H01

3 hours @ 66.00 .

198.00

Hole H02

3 1/2 hours @ 66.00

231.00

429.00

Moves

Hole H01 to H02

45 hours @ 66.00

2,970.00

Penetration of Overburden

Hole H02

11 hours @ 66.00

1 NW Shoe E796

Plus 18%

148.40

26.71

726.00

175.11

901.11

Hole Reduction

Hole H02

17 1/2 hours @ 66.00

1,155.00

\$

79,081.00  
 -----



# Longyear Canada Inc.

CONTRACT DRILLING DIVISION

721 Aldford Avenue

Annacis Island, New Westminster, B.C. V3M 5P5

Telephone: 604-524-2511

Telex: 43-51280

9/28/81

Invoice No. 1626  
Cust. No. 6051  
Job No. 6292  
Dest. 062

Utah Mines Ltd.,  
Suite 1600,  
1050 W. Pender St.,  
Vancouver, British Columbia V6E 3S7

Utah Hatsoff  
Invoice date: September 15/81  
for August 1981

To: Invoice for diamond drilling performed on Hatsoff Project near Invermere, British Columbia during period August 15-28, 1981 per agreement.

Hole No.	Size	From	To	Total	Rate	Amount
H02	BQ Wireline	2493	2500	7	21.00	147.00
		2500	3000	500	23.10	11,550.00
		3000	3500	500	25.90	12,950.00
		3500	3527	27	29.50	796.50
				1034		25,443.50

Client Charges - attached  
Westcoast Drilling Supplies Ltd.

	1,049.40
Plus 18%	188.89
	1,238.29

Moves  
Hole H02  
4 hours @ 66.00 264.00

Client Testing  
Hole H02  
1 hour 66.00

Reaming Casing, Cave and Lost Circulation  
Hole H02  
48 hours @ 66.00 3,168.00  
1 BQ Bit GR66935 328.60  
1 BQ Shell E3351 153.70  
482.30  
Plus 18% 86.81  
569.11

Prorated diamond recovery -  
see later invoice -  
3,737.11

Hole H01  
Prorated diamond recovery-see later invoice -  
3,737.11

\$ 30,748.90



# Longyear Canada Inc.

CONTRACT DRILLING DIVISION

721 Aldford Avenue

Annacis Island, New Westminster, B.C. V3M 5P5

Telephone: 604-524-2511

Telex: 43-51280

Invoice No. 1838

Cust. No. 6051

Job No. 6292

Dest. 062

10/14/81

Utah Mines Limited,  
Suite 1600,  
1050 W. Pender St.,  
Vancouver, British Columbia  
V6E 3S7

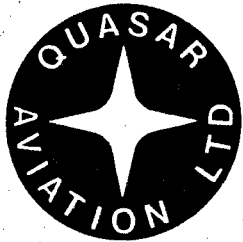
Utah Hatsoff  
Invoice date: October 2/81  
for September 1981

To: Invoice for diamond drilling performed on Hatsoff Project near  
Invermere, British Columbia during period August 28-September 7,  
1981 per agreement.

Hole No.	Size	From	To	Total	Rate	Amount
H.O. 2	BQ Wireline	3527	4000	473	29.50	13,953.50
<u>Client Charges</u>						
Thiessen Equipment Ltd.					694.20	
Westcoast Drilling Supplies Ltd.					60.53	
						754.73
<u>Client Testing and Delays</u>						
Hole H.O. 2						
7 hours @ 66.00						462.00
<u>Moves</u>						
Move Out						
39 hours @ 66.00						2,574.00
<u>Left in Hole</u>						
Hole H.O. 2						
2 NW 2' casing @ 38.96					77.92	
1 NW 5' casing					74.73	
2 NW 10' casing @ 134.36					268.72	
1 NW Shoe E796 (previously charged)					-	
1 BW Shoe E2857					116.60	
					537.97	
Plus 18%					96.83	
						634.80
<u>Reaming Casing, Cave and Lost Circulation</u>						
Hole H.O. 1 and H.O. 2						
Prorated diamond recovery-see later invoice						
						-
						\$ 18,379.03

# QUASAR AVIATION LTD.

HELICOPTER CHARTER SERVICE



~~10/13/81~~ 10/13/81

QUASAR AVIATION LTD.  
150-10451 SHELLBRIDGE WAY  
RICHMOND, B.C.  
V6X 2W8

INVOICE

No: 81421

To: Utah Mines Ltd.  
1600 -1051 West Pender Street  
Vancouver, B.C.  
V6E 3S7

Date: 25 Sept. 81

Customer Order No.  
**Re: Bryan Richards**

Helicopter Type	Registration	ATC Area	Period/Order Date
Bell 214B-1	C-GVXC	8.1	18 - 20 Sept. 81

Description	Amount
Flying Hours: 11.2 @ \$1680.00	\$ 18,816.00
Fuel: 520 gal @ 1.75/gal	910.00
Crew Food: 3 men x 2 days @ \$18.00/day	108.00
Crew Accommodation: as per attached slip	178.00
<b>TOTAL</b>	<b>\$ 20,012.00</b>

*Bryan Richards*  
*Hattop*

1/31/81 CB9

20,012.00

20,012.00





INVOICE

Hangar No. 6A, Municipal Airport  
Edmonton, Alberta T5G 2Z3  
Phone 453-5121

9/19/81

July 28, 1981

TO

Utah Mines Ltd.,  
Suite 1600 - 1050 W. Pender,  
Vancouver, B.C.  
V6E 3S7

PAYABLE AT PAR EDMONTON

CUSTOMER'S ORDER NUMBER	HELICOPTERS <b>C-GLMW</b>	PILOT <b>Brown</b>
DESCRIPTION		CHARGES

June 25, 1981	78719	6.8 hrs. @ \$395. per hr. Plus Fuel @ .35/liter for 652.74 l. Plus Oil @ \$2.00 per hr.	\$2,686.00 228.46 13.60
June 26, 1981	78721	4.8 hrs. @ \$395. per hr. Plus Fuel @ .35/liter for 460.8 l. Plus Oil @ \$2.00 per hr.	1,896.00 161.28 9.60
June 27, 1981	78723	2.7 hrs. @ \$395. per hr. Plus Fuel @ .35/liter for 331.83 l. Plus Oil @ \$2.00 per hr.	1,066.50 116.14 5.40
June 28, 1981	78724	6.6 hrs. @ \$395. per hr. Plus Fuel @ .45/liter for 633.6 l. Plus Oil @ \$2.00 per hr.	2,607.00 285.12 13.20
June 30, 1981	78725	3.0 hrs. @ \$395. per hr. Plus Fuel @ .35/liter for 288.0 l. Plus Oil @ \$2.00 per h.	1,185.00 100.80 6.00
			<u>\$10,380.10</u>

**B 2990**

TERMS NET 30 DAYS — 2% PER MONTH CHARGED ON OVERDUE ACCOUNTS.



**Shirley Air  
Services Ltd.**

INVOICE

Hangar No. 6A, Municipal Air  
Edmonton, Alberta T5G 2Z  
Phone: 453-5121

9/9/81

July 31, 1981

TO

Utah Mines Ltd.,  
Suite 1600 - 1050 W. Pender,  
Vancouver, B.C.  
V6E 3S7

PAYABLE AT PAR EDMONTON

CUSTOMER'S ORDER NUMBER	HELICOPTERS	PILOT
	<b>C-GLMW</b>	<b>Brown</b>
DESCRIPTION		CHARGES

July 8, 1981	78655	2.4 hrs. @ \$425. per hr. Plus Fuel @ \$.35 per l for 230.4 l. Plus Oil @ \$2.00 per hr.	\$ 1,020.00 80.64 4.80
July 9, 1981	78656	4.2 hrs. @ \$425. per hr. Plus Fuel @ .35 per l for 403.2 l Plus Oil @ \$2.00 per hr.	1,785.00 141.12 8.40
July 11, 1981	78662	2.4 hrs. @ \$425. per hr. Plus Fuel @ .35 per l for 230.4 l. Plus Oil @ \$2.00 per hr.	1,020.00 80.64 4.80
July 15, 1981	78666	4.3 hrs. @ \$425. per hr. Plus Fuel @ .35 per l for 412.8 l. Plus Oil @ \$2.00 per hr.	1,827.50 144.48 8.60
July 16, 1981	78669	1.1 hrs. @ \$425. per hr. Plus Fuel @ .35 per l for 105.6 l. Plus Oil @ \$2.00 per hr.	467.50 36.96 2.20
July 17, 1981	78671	1.5 hrs. @ \$425. per hr. Plus Fuel @ .35 per l for 144 l. Plus Oil @ \$2.00 per hr.	637.50 50.40 3.00
July 20, 1981	78674	.8 hrs. @ \$425. per hr. Plus Fuel @ .35 per l for 76.8 l. Plus Oil @ \$2.00 per hr.	340.00 26.88 1.60
			<u>\$7,692.02</u>

**B 3083**

TERMS NET 30 DAYS — 2% PER MONTH CHARGED ON OVERDUE ACCOUNTS.



**Shirley Air**  
Services Ltd.

INVOICE

Hangar No. 6A, Municipal Airport  
Edmonton, Alberta T5G 2Z3  
Phone 453-5121

9/9/81

July 31, 1981

TO

Utah Mines Ltd.,  
Suite 1600 - 1050 W. Pender,  
Vancouver, B.C.  
V6E 3S7

PAYABLE AT PAR EDMONTON

CUSTOMER'S ORDER NUMBER	HELICOPTERS <b>C-GLMW</b>	PILOT <b>Brown</b>
DESCRIPTION		CHARGES

July 22, 1981	78676	6.2 hrs. @ \$425. per hr. Plus Fuel @ .35 per l for 595.2 l. Plus Oil @ \$2.00 per hr.	\$ 2,635.00 208.32 12.40
July 23, 1981	78678	1.0 hrs. @ \$425. perhr. Plus Fuel @ .35 per l for 96 l. Plus Oil @ \$2.00 pr hr.	425.00 33.60 2.00
July 29, 1981	78680	3.0 hrs. @ \$425. per hr. Plus Fuel @ .35 per l for 288 k, Plus Oil @ \$2.00 per hr.	1,275.00 100.80 6.00
July 25, 1981	78682	3.9 hrs. @ \$425. per hr. Plus Fuel @ .35 per l for 374.4 l. Plus Oil @ \$2.00 per hr.	1,657.50 131.04 7.80
			<u>\$6,494.46</u>

**B 3084**

TERMS NET 30 DAYS — 2% PER MONTH CHARGED ON OVERDUE ACCOUNTS.



**Shirley Air  
Services Ltd.**

INVOICE

Hangar No. 6A, Municipal Airport  
Edmonton, Alberta T5G 2Z3  
Phone 453-5121

9/17/81

August 31, 1981

TO

Utah Mines Ltd.,  
Suite 1600 - 1050 W. Pender,  
Vancouver, B.C.  
V6E 3S7

PAYABLE AT PAR EDMONTON

CUSTOMER'S ORDER NUMBER	HELICOPTERS	PILOT
	<b>C-GLMW</b>	<b>Brown</b>
DESCRIPTION		CHARGES

July 28, 1981	83751	2.0 hrs. @ \$425. per hr. Plus Fuel @ \$1.64 per gal for 48g. Plus Oil @ \$2.00 per hr.	\$850.00 78.72 4.00
July 30, 1981	83753	2.3 hrs. @ \$425. per hr. Plus Fuel @ \$1.64 per gal for 55.2g. Plus Oil @ \$2.00 per hr.	977.50 90.53 4.60
July 31, 1981	83754	.7 hrs. @ \$425. per hr. Plus Fuel @ \$1.64 per gal for 16.8g. Plus Oil @ \$2.00 per hr.	297.50 27.55 1.40
Aug. 1, 1981	83755	2.5 hrs. @ \$425. per hr. Plus Fuel @ \$1.64 per gal for 60g. Plus Oil @ \$2.00 per hr.	1,062.50 98.40 5.00
Aug. 5, 1981	83760	3.1 hrs. @ \$425. per hr. Plus Fuel @ \$1.64 per gal for 74.4g. Plus Oil @ \$2.00 per hr.	1,317.50 122.02 6.20
Aug. 7, 1981	83762	3.1 hrs. @ \$425. per hr. Plus Fuel @ \$1.64 per gal for 74.4g. Plus Oil @ \$2.00 per hr.	1,317.50 122.02 6.20
Aug. 13, 1981	83764	.9 hrs. @ \$425. per hr. Plus Fuel @ \$1.64 per gal for 21.6g. Plus Oil @ \$2.00 per hr.	382.50 35.42 1.80

\$6,808.86

**B 3518**

TERMS NET 30 DAYS — 2% PER MONTH CHARGED ON OVERDUE ACCOUNTS.



# GULF CANADA LIMITED

P.O. BOX 4038,  
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SET 1 PAGE 1

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OLD TO  
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SHIPPED TO  
UTAH MINES LTD  
ATHALMER  
BC

*Antrott*  
*10/13/81*

WHEN REMITTING PLEASE QUOTE	
CUSTOMER NO. <b>540018-11</b>	INVOICE NO. <b>388884</b>
REFERENCE DATE	<b>SEPT 16, 1981</b>
TRANSACTION TYPE	<b>INVOICE</b>
TERMS	<b>CHARGE</b>
SUPPLY NUMBER	<b>69672</b>
CARRIER NUMBER	<b>00000</b>

F.A.C.T. <b>920174696</b>	BATCH	FED. E.T. LIC. NO.	PROV. TAX LIC. NO.	CUST. F.T. NO.	<b>ATHALMER</b>	SUPPLY LOCATION	CUSTOMER ORDER NUMBER
------------------------------	-------	--------------------	--------------------	----------------	-----------------	-----------------	-----------------------

PRODUCT CODE	PRODUCT DESCRIPTION	TAX F.P.	UNIT	QUANTITY	UNIT PRICE		FUEL TAX		TOTAL PRICE		AMOUNT	
					\$	¢	\$	¢	\$	¢	\$	¢
ETBD56	JET B D-I		2L	6,150	4399		0268		4667		2,87021	
P72080	YP72080 SPEC DELIVERY SURCHG	299		6,150	0242				0242		14883	
EPH156	45G/205L RET HVYDR \$28.LINED	221		30	2800			2800			84000	
P72120	YP72120 SPEC DELIVERY SURCHG	299		615	0154				0154		947	
P72171	YP72171 SPEC DELIVERY SURCHG	299		3,108	0154				0154		4786	

SEE REVERSE FOR IMPORTANT INFORMATION

CARTAGE NOT CHGD FOR  
ON INV 317003  
AUG 7.81 - S/O 615 L  
DIESEL P 3108

011081 GULF VENDOR NO. 55223  
98 69201 30 69672 74696 03101

3,91637

AMOUNT

APPENDIX D  
DIAMOND DRILL LOGS







COMPOSITE DRILL LOG

CORE SIZE : BQ SCALE : 1:100 PROJECT : HATSOFF HOLE No. : HD  
 CASING COLLAR ELEV. : 2930.4 GROUND ELEV. : 2930M DATE STARTED : July 13/81 PAGE No. 49 OF  
 COORDINATES : N. 11793 E. 12431 DATE FINISHED : REF. TO CLAIM CORNER : 53m @ 008°  
 INCLINATION : -60° AZIMUTH : 012° TOTAL DEPTH : LOGGED BY : T. Pollock

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-feldspar													
720																	
721							Quartz Monzonite			720.9	97%		Mo			720	
722							- medium grained, homogeneous, salt + pepper texture,						NIL	47557			
723							- 10-15% matrics mainly bio, minor mag.				100%						
724							- 15-20% qtz, 65-70% feldspar (1/3 K feldspar).										
725							- fresh looking, hard,			722.9	100%	12%					
726							0.6 qtz-py unit										
727							to 0.4 cm qtz-ser-py env.										
728							2mm qtz-py unit				97%						
729							1cm qtz-ser-py env.										
730							5cm long patch of qtz w py 8cm of										
731							qtz-mus-py plus minor sec. k-feldspar.			726.9							
732							matrics beyond this for 3cm partially alt. to chl + epid.										
733							0.6 gyp in w 3cm qtz-ser-(py) env.										
734							226.7- 3cm qtz-ser-py zone w sph.										
735											100						
							- occasion large 1x2cm white										
							1cm qtz va w minor py, mus, to pale pink feld. crystal.			730	93%						
							1cm qtz-k-feld-mus env.			726.9							
							0.4 cm barren qtz va.										
							732-735- 8- qtz-ser-py units										
							1 barren qtz										
							1 qtz-py				88%						
							0.3 cm py unit.										
							1cm qtz unit w sph, W03,										
							minor py - higher conc of k-feld around unit than normal			731.6							





















COMPOSITE DRILL LOG

CORE SIZE : BQ SCALE : 1:100 PROJECT : Hatsoff HOLE No. : 140  
 CASING COLLAR ELEV. : 2930.4 GROUND ELEV. : 2930.0m DATE STARTED : July 13/81 PAGE No. 59 OF  
 COORDINATES : 11793 N. 12431 E. DATE FINISHED : REF. TO CLAIM CORNER : 53m @ 008°  
 INCLINATION : -60° AZIMUTH : 012° TOTAL DEPTH : LOGGED BY : T. Pollock

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-FELDSPAR													
870																	
871							Quartz Monzonite			870.5						870	
872					weak		2cm qtz-ser-py mlt. - medium grained phase - magnetite has disappeared. - mainly good salt & pepper texture - however local patches of coarse			114%	5%	NIL		47598			
873					weak		1cm pyroclastic m. qtz + k-felds per disrupt texture - quite fresh + hard.									873	
874							Contact @ 35°			873.6							
875							0.2cm py 874.15 = 878.5 Aplite dyke mlt, no lev. - pale pink-white, < 5% matrix, hard, trace mo, mag, washed out look, py mlts common, 2% ser.						NIL				
876	weak				weak											876	
877																	
878					weak		- locally mottled dark green from chlorite + sericite			95%			NIL		47599		
879							Contact unknown										
880							Quartz Monzonite - med. grained, occasional large feldspar crystal. - vein like structures high in bio. common.			877.7						879	
881					weak		0.2cm qtz-py mlt w fracture. 879-882m - 3-qtz-ser-py mlt.							NIL			
882										101%	5%					882	
883																	
884							1cm qtz-py m w wds, 0.5cm lev										
885							0.3cm qtz-py m w wds, 0.2cm lev							NIL	47600		885







COMPOSITE DRILL LOG

CORE SIZE : NQ SCALE : 1.100 PROJECT : Hatsoff HOLE No. : HD  
 CASING COLL. ELEV.: GROUND ELEV.: 2930.0m DATE STARTED : July 25/81 PAGE No. 2 OF  
 COORDINATES : 11793 N. 12431 E. DATE FINISHED : REF. TO CLAIM CORNER : 53m @ 008°  
 INCLINATION : -90° AZIMUTH : TOTAL DEPTH : m LOGGED BY : T. Pollock

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	ESTIMATED	SAMPLE NO.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	lc - kfs													
15							3mm v-fracture										
16							gt <sub>2</sub> -py-ser w mo	Quartz Monzonite									
17	weak						0.4cm gt <sub>2</sub> -py in w 1cm env.	- c.g. phase - rare local sections highly broken due to high sericite content.		90.0	.5	lc					
18							1.5cm gt <sub>2</sub> -ser-py in.			17.0							
19	weak							- rare large pink kfs crystal - fresh looking, hard, - weak alteration of bro to chl + minor sp.		93.5							
20					weak - mod. py sph, mag.		0.6 cm gt <sub>2</sub> in w sph, 0.5cm env.	- quite homogeneous		20.1			NIL	47608			
21																	
22																	
23							0.3cm gt <sub>2</sub> -ser-py in.			86.6			NIL				
24										23.2							
25							8cm gt <sub>2</sub> -py in w sph + kfs, 2cm env.	- gossanous fractures still common, some coated with sericite.		96.7							
26					weak - mod py sph, mag.		1cm gt <sub>2</sub> -ser-py in.			26.2			Tr.	47609			
27	weak																
28										93.5							
29													NIL				
30										29.3							
										103.2							30





COMPOSITE DRILL LOG

CORE SIZE : *NQ* SCALE : *1100* PROJEC : *Hatsoff* HOLE No. : *H4*  
 CASING COLLAR ELEV. : GROUND ELEV. : *2930.0m* DATE STARTED : *July 25/81* PAGE No. *4* OF  
 COORDINATES : *11793 N. 12431 E.* DATE FINISHED : REF. TO CLAIM CORNER : *53m @ 008°*  
 INCLINATION : *-90°* AZIMUTH : TOTAL DEPTH : *m* LOGGED BY : *T. Pollock*

DEPTH (m)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS:	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (m)	ASSAYS
	SILICA	SERICITE	CLAY	K-feldspar													
45																	
46								Fracture coated Quartz Monzonite 5ms. -qtz. - coarse grained phase - occasional large (>1cm <sup>2</sup> ) feldspar crystal,		93.3		1%	NIL	47612		45	
47					weak					47.5							
48					weak			0.5cm qtz-py m w 1cm env. 48-51m: 1 qtz-py m									
49								10 qtz-ser-py m/ks hairline fracture		93.5			Tr.				
50								w mo									
51								0.6cm qtz-py m w 1cm env cuts a 0.5cm qtz-ser-py m w trace mo.		50.6							
52										44.4							
53								- fractures still gossanous, - locally strongly broken, - strong qtz-ser-py envelopes around some qtz ms.		52.4			NIL	47613			
54								1cm qtz-py m, w 2cm env.		87							
55								7cm qtz-py m w sil. mineral.		55.5							
56								1cm qtz-py m w 0.7 cm env.					NIL				
57										85.7							
58								2cm qtz-py m w 3 cm env.		57.6		1%					
59								2cm qtz-py m w mo 1cm envelopes					Tr	47614			
60								1cm qtz-py m 0.5cm env.		90.6							

COMPOSITE DRILL LOG

CORE SIZE : *NQ*  
 CASING COLLAR ELEV.:  
 COORDINATES : *11793* N. *12431* E.  
 INCLINATION : *-90°*

SCALE : *1:100*  
 GROUND ELEV.:  
 AZIMUTH :

PROJECT : *Hatsoff*  
 DATE STARTED : *July 25/81*  
 DATE FINISHED :  
 TOTAL DEPTH :

HOLE No. : *40*  
 PAGE No. *5* OF  
 REF. TO CLAIM CORNER : *53 m e 008°*  
 LOGGED BY : *T. Pollock*

DEPTH (M)	ALTERATION					FRACTURING	MINERALS	GEOLOGY	COMMENTS:	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	ESTIMATED	SAMPLE NO.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-feldspar	Chlorite													
60									Quartz Monzonite									
61						weak			- coarse grained phase		60.8	106						
62						weak			- similar to above				.5	Tr				
63						weak	py, mo		Fracture along a 1cm qtz-ser-py m.									
64						weak	py, mo		0.2cm qtz in m 60-63m: 1qtz Contact @ 20° 63-63.9m: Aplite dyke, f.g., no sulfides			100						
65									1mm qtz in m no enclaves, 2cm qtz in m serpy 1cm env.									
66									4cm pegmatite in		63.9			Tr	47615			
67						weak	py, mag				65.8	89.4						
68						weak			fractures gossanous, trace mag, weak alt. of bio to chl+epid. but otherwise quite fresh, homogeneous					NIL				
69									3cm qtz in, 1cm env. 1cm qtz in, no env. 2cm qtz in w py, 1.5 cm env.		67.4							
70									1.5cm cal. in w good WO <sub>3</sub> , + py, hem. 2cm env.		68.9							
71									69-72m: 1cal m w WO <sub>3</sub> + hem					.05 + WO <sub>3</sub>	47616			
72									3cm qtz-py in w good m 1cm env.									
73									2qtz-py w mo m 7qtz-ser-py m lts		71.9							
74									0.3cm qtz-py-rms in, 0.4cm env. 1.3cm qtz-py in w minor MO, 0.6cm env.									
75									0.8cm qtz-py in w 0.5cm env. e.g. phase qtz monzonite, plag. weakly saussuritized		74.7		1%	NIL				

COMPOSITE DRILL LOG

CORE SIZE : NQ SCALE : 1:100 PROJECT : Hatsof  
 CASING COLLAR ELEV. : GROUND ELEV. : 2930.0m DATE STARTED : July 25/81 HOLE No. : H0  
 COORDINATES : 11793 N. 12431 E. DATE FINISHED : REF. TO CLAIM CORNER : 53m @ 008°  
 INCLINATION : -90° AZIMUTH : TOTAL DEPTH : m LOGGED BY : T. Pollock

DEPTH (M)	ALTERATION					FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-feldspar	Chlorite													
75									5cm gtz-py in 3 mo + mo in 2cm env.								75	
76									Quartz, Margarite eg. phase, homogenous, fresh,		76.5	100%						
77									0.5 cm gtz-ser-py m.									
78									76.3-76.7m: gtz-plag-ser dyke, f.g., white, homogenous, contacts @ 45°		78.0	100			47617		78	
79									0.9 cm gtz-py m in 1 mo minor feldspar 0.4 cm 2cm gtz-py m in 3 mo 1cm env.									
80									Composition: 10-15% blk bio, trace mag, 20% gtz - rest feldspar		79.6							
81									0.7 cm gtz-py m in 1cm env.		81.1						81	
82									quite fresh, fractures still gossanous plag is pale green; not a strong salt + pepper texture.		81.7	100						
83									1.5 cm gtz-ser-py m.						47618			
84											84.1						84	
85									1cm gtz-py m, 0.5 cm env.									
86									85.15-85.25 + 86.95-87.05: aplite dykes, no sulphides.		86.3							
87																		
88									3 gtz-py m in gtz ser-py, 5cm wide in 3 mo.								87	
89																		
90									20 cm zone in gtz m + much gtz - w/ py in sph, mo, cp,		89.6				47619		90	

COMPOSITE DRILL LOG

CORE SIZE : *NQ* SCALE : *1:100* PROJECT : *Hatsoff* HOLE No. : *142*  
 CASING COLLAR ELEV. : GROUND ELEV. : *2930.0m* DATE STARTED : *July 25/81* PAGE No. *7* OF  
 COORDINATES : *11793* N. *12431* E. DATE FINISHED : REF. TO CLAIM CORNER : *53m @ 008°*  
 INCLINATION : *-90°* AZIMUTH : TOTAL DEPTH : LOGGED BY : *T. Pollock*

DEPTH (M)	ALTERATION					FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-feldspar	Chlorite													
90									0.5cm qtz-py m, 1cm env.							90		
91									Quartz, Magnetite c.g. phase,									
92									90.5-91.2m: qtz-plag dyke, 5% bio, (minor alt to py, hem).		79.1	.5-16	NIL					
93		weak		weak		moderate					92.0							
94									-plag. is becoming pale green in color + softer, weak alt of bio to chl, epid + ser.		94.7					93		
95									4cm barren qtz m, 1cm env.		93.9							
96									2cm qtz m w sil. min in int env.		91.7		NIL	47620				
97									Contact @ 55		96.3					96		
98									1cm qtz-py m w ser + mo, 4cm env.	95.9-97.6m: fg. qtz-plag dyke, <2% matrics, 5% ser.	97.5		Tr.					
99									1.5cm qtz-py m. Contact @ 30		100							
100									1cm qtz-ser py m w mo	98-99m: dyke similar to above.	97.5							
101									1cm qtz-py m w mo, 13cm env.		87					99		
102									.5cm qtz-py m w mo, 1.5cm env.		100.6		.05	47621				
103									1.2cm qtz-py m w mo, .6cm env.		105.5							
104									0.8cm qtz-py m w mo also mo in 5cm env.	-locally between vns plag is altered to clay + ser - it is pale green + soft.	102.4					102		
105									0.5cm qtz-py m w mo, 0.7cm env.		102.4							
106									1.3cm qtz-py m w mo, teal, 0.5cm env.	where vns not present, the rock is hard, + still quite fresh,	95.2	2%	0.03					
107									0.4cm qtz-py m w mo, 0.7cm env.		104.5							
108											85.7					105		











COMPOSITE DRILL LOG

CORE SIZE : *NQ* SCALE : *1:100* PROJECT : *Hatsoff* HOLE No. : *HO*  
 CASING COLLAR ELEV. : GROUND ELEV. : DATE STARTED : *July 25/81* PAGE No. *12* OF  
 COORDINATES : *11793 N. 12431 E.* DATE FINISHED : REF. TO CLAIM CORNER : *53 m @ 008°*  
 INCLINATION : *-90°* AZIMUTH : TOTAL DEPTH : *m* LOGGED BY : *T. Pollock*

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-feldspar													
165																	
166																	
167	<i>weak</i>	<i>weak</i>			<i>weak</i>			<i>Quartz Monzonite</i> <i>- milky white washed out look,</i> <i>individual grains do not stand out</i> <i>mag 10% mafics,</i> <i>1.5cm gty in w py</i> <i>+ tr mo, 0.5cm env.</i> <i>1.5cm gty-py in w tr mo.</i>		<i>166.9</i>	<i>100</i>	<i>2.5</i>	<i>Tr</i>	<i>47635</i>		<i>165</i>	
168	<i>moderate</i>				<i>weak</i>			<i>167-168.3m: white, gty-plag dyke, mag.</i> <i>no mafics, minor py + ser, similar to</i> <i>1.6cm gty-py in w mo</i> <i>to 0.5cm env.</i> <i>0.1 gty-py in w mo.</i> <i>dyke below but without gty stockwork + no.</i> <i>Contact @ 45°</i>		<i>168.9</i>	<i>104</i>					<i>168</i>	
169																	
170					<i>mod.</i>			<i>169.4-170.85- fine grained white dyke, composed mainly</i> <i>of gty-plag, no mafics, py only in vns, cut by</i> <i>0.4cm barren gty in</i> <i>cuts &amp; 0.1 gty-py in km</i> <i>env.</i> <i>stockwork of fine gty vns in mo.</i>		<i>170.9</i>	<i>96.7</i>	<i>.2</i>		<i>47636</i>		<i>171</i>	
171																	
172								<i>0.8</i> <i>cm gty in w tr mo</i> <i>no env.</i> <i>0.6 cm gty-k-feld</i> <i>py in</i> <i>0.4 cm gty-py in</i> <i>in mo + k-f, 0.5 cm env</i> <i>fg-mag. gty mag. in plag sauss.</i>		<i>171.9</i>							
173																	
174					<i>mod.</i>												
175								<i>0.4 cm gty-py in w mo, 0.2 cm</i> <i>Quartz Monzonite</i> <i>0.2 cm gty-ser py in</i> <i>- med. grained phase, mafic content</i> <i>is patchy, avg 10-15%, mag conc</i> <i>in high mafic patches,</i> <i>174-177: 3 gty-py vns</i> <i>gtj-k-feldspar vns (1 or less common).</i>		<i>173.9</i>	<i>93.7</i>		<i>Tr</i>			<i>174</i>	
176																	
177																	
178	<i>weak</i>																
179					<i>mod.</i>			<i>0.5 cm gty-py in</i>		<i>177.6</i>	<i>95.2</i>	<i>2%</i>	<i>Tr</i>	<i>47637</i>		<i>177</i>	
180										<i>179.9</i>						<i>180</i>	

COMPOSITE DRILL LOG

CORE SIZE ( : **NQ** SCALE : **1:100** PROJECT ( : **Hatzoff** HOLE No. : **140 2**  
 CASING COLLAR ELEV. : GROUND ELEV. : DATE STARTED : **July 25/81** PAGE No. **13** OF  
 COORDINATES : **11793 N. 12431 E.** DATE FINISHED : REF. TO CLAIM CORNER : **53m @ 008°**  
 INCLINATION : **-90°** AZIMUTH : TOTAL DEPTH : LOGGED BY : **J. Pollock**

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS		
	SILICA	SERICITE	CLAY	K-feldspar														CHLORITE	
180																180			
181								0.5 cm qtz-py in w mo 1cm env. <b>Quartz Monzonite</b> - siliceous, matrix altered to py+ser. matrix < 3% (present locally).		181.2	93.3	22	Tr						
182								0.3cm qtz-py in w mo, 0.4cm env. 7 fractures/meter, pale green, hard, K-feld < 15%.		183	100								
183								- weakly silicified,		183.5	80						183		
184											92.3								
185										184.8			Tr	47638					
186								1cm qtz-py in w 0.5 cm env.		185.2	95.2								
187								6x3cm sil zone w mo + sph, <b>17 fractures/m, locally some plag crystals alt. to clay,</b>		186.4	83.8						186		
188								3cm qtz-py in w + mo, sph 1cm env. <b>locally strongly broken, individual grains do no stand out - welded appearance</b>		187.6	100								
189								0.7cm qtz in w py, sph.		187.6	87.5								
190										188.4	100						189		
191										189.3	100								
192								5cm qtz-py in w mo + sph, 1cm env. <b>med. grained phase, Comp: 15% matrix, mainly bio - minor mag in high matrix rounded patches (xenoliths?)</b>		190.8	92.8			47639				192	
193								20% qtz - 1/3 of qtz felds - K-feldspar hematite staining common.		192.2	100								
194								1cm qtz-ser-py in <b>- bio weakly alt. to chlorite</b>		193.1	100								
195										193.8	100	1.5% Nil							
										193.3	93.3						195		

COMPOSITE DRILL LOG

CORE SIZE : *NP* SCALE : *1:100* PROJECT : *Hatsoke* HOLE No. : *140*  
 CASING COLLAR ELEV.: GROUND ELEV.: DATE STARTED : *July 25/81* PAGE No. *14* OF  
 COORDINATES : *11793 N. 12431 E.* DATE FINISHED : REF. TO CLAIM CORNER : *53m @ 008°*  
 INCLINATION : *-90°* AZIMUTH : TOTAL DEPTH : LOGGED BY : *T. Pollock*

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS:	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERPENTINE	CLAY	K-feldspar													
195										195.3						195	
196							<i>Quartz, Monzonite similar to above,</i>			196.1	<i>109</i>	<i>22%</i>		<i>47640</i>			
197					<i>strong</i>		<i>1cm qtz-py in mo, sph, 0.6cm env.</i>			197.0	<i>100</i>		<i>Tr</i>				
198							<i>-occasional large K-feldspar phenos,</i>			197.8	<i>75</i>						
199										199.2	<i>92.7</i>						
200					<i>locally weak</i>		<i>core is locally in pieces, some plag crystals altered to clay.</i>			200.1	<i>88.2</i>		<i>Tr</i>				
201							<i>0.3cm qtz-py in, 0.3cm env.</i>			200.7							
202					<i>strong</i>					201.7	<i>88.2</i>						
203							<i>0.5cm qtz-py in w sph, 0.7cm env.</i>			202.1			<i>NIL</i>	<i>47641</i>			
204							<i>Medium grained phase, composition similar to above, quite fresh, hard, homogeneous,</i>			204.2	<i>94.4</i>						
205					<i>moderate</i>		<i>qtz-py in w mo dying off</i>			205.1	<i>100</i>						
206							<i>204-207m: 6 qtz-w-py mlts</i>			205.5			<i>NIL</i>				
207							<i>7 fractures/m.</i>			207.1	<i>100</i>						
208					<i>moderate</i>		<i>few qtz ms.</i>			207.9	<i>88.8</i>						
209										209.1	<i>102.7</i>		<i>NIL</i>	<i>47642</i>			
210										210.0							

COMPOSITE DRILL LOG

CORE SIZE : *NP* SCALE : *1:100* PROJECT : *Hatsoff* HOLE No. : *40*  
 CASING COLLAR ELEV. : GROUND ELEV. : DATE STARTED : *July 25 1981* PAGE No. *15* OF  
 COORDINATES : *11793 N. 12431 E.* DATE FINISHED : REF. TO CLAIM CORNER : *53m @ 008°*  
 INCLINATION : *-90°* AZIMUTH : TOTAL DEPTH : LOGGED BY : *T. Pollock*

DEPTH (M)	ALTERATION					FRACTURING	MINERALS	GEOLOGY	COMMENTS:	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE NO.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SEPICITE	CLAY	K-Feldspar	CHLORITE													
210									Quartz Monzonite		210					210		
211						mod.		0.6 cm qtz, m w cal, mo, py 10.5 cm env.	-m.g.,		99.7	1.5%						
212								1 cm qtz m w silvery min. no env.	← mafic alt. to ser + py		211.8							
213								0.3 cm qtz - cal m w mo, minor py.			99.7						213	
214								0.2 cm qtz m w ser. no env.			213.7							
215						strong					214.9	108%		47643				
216			very weak					hairline gyp vult.			215.9						216	
217								0.6 cm qtz w WOs cuts d qtz-ser py unit + gyp unit.			216.7							
218						weak		hairline gyp m w qtz-ser-py unit.	not too black + pale pink, mafic weakly altered to chl + epid., mg, homogeneous, occasional large k-feldspar xl.		217.8							
219								1 cm qtz-py m; 1 cm env.			218.8						219	
220								2 cm qtz-py m w sph + silvery min., 1 cm env.	some plag xl's alt to clay.		219.8							
221						weak					220.8			47644				
222								hairline gyp m.	219-222: 1 qtz-py m.		221.8							
223								2 cm qtz-py m w mo. 1 cm env.	11 qtz-ser-py m's + gyp hairline vult.		222.8						222	
224			very weak						-rock now is competent, fresh + hard.		223.8							
225								0.3 cm qtz-py m. 1 cm qtz-py m w mo, 0.7 cm env.			224.8						225	

COMPOSITE DRILL LOG

CORE SIZE : *NQ* SCALE : *1:100* PROJECT : *Hatsoff* HOLE No. : *40*  
 CASING COLLAR ELEV. : GROUND ELEV. : DATE STARTED : *July 25/81* PAGE No. *16* OF  
 COORDINATES : *11 793 N. 12431 E.* DATE FINISHED : REF. TO CLAIM CORNER : *53m@008°*  
 INCLINATION : *-90°* AZIMUTH : TOTAL DEPTH : LOGGED BY : *T. Pollock*

DEPTH (M)	ALTERATION					FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE NO.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-Feldspar	CHALCOPRITE													
225																		
226								Quartz Monzonite	med. grained, homogeneous, fresh, rare large pink K-feldspar plera, 2 fractures/m, - high mafic patches common (contain mag.) avg 4-5 cm across.		226.5	100	1%			225		
227						weak		0.2 cm gouge			226.5	91.6		Tr.	47645			
228								0.7 cm gtz-py m w mo, 1 dm env.			227.1	96.7					228	
229								0.3 cm gtz-gyp un w sph	231-234: 2 gtz-py ms 15 gtz-ser-py unts 1 gyp mlt.			100		Tr.				
230						very weak		0.9 cm gtz-py m w mo, 0.5 cm env.			230.1							
231								0.8 cm gtz-py m w tr mo, 0.8 cm env.									231	
232								1 cm gtz-ser-py un.				100						
233						weak								NEL	47646			
234																		
235								hairline gyp mlt w py				93.3					234	
236								0.9 cm gtz-py m w 0.5 cm env.						Tr.				
237								1 cm gtz-py m w mo w 1 cm env.	medium grained phase, has the appearance of granite, equigranular, homogeneous, fleshy, hard,		236.5						237	
238						weak			237-240m: 2 gtz-py ms			103.2						
239						weak		0.5 cm gtz-py m w 1 cm env.	20 gtz-ser-py ms 1 gyp mlt.			15%		47647				
240											239.6						240	

COMPOSITE DRILL LOG

CORE SIZE : *NQ* SCALE : *1:100* PROJECT : *Hatsoff* HOLE No. : *HO*  
 CASING COLLAR ELEV. : GROUND ELEV. : DATE STARTED : *July 25 1981* PAGE No. *17* OF  
 COORDINATES : *11793* N. *12431* E. DATE FINISHED : REF. TO CLAIM CORNER : *53m @ 008°*  
 INCLINATION : *-90°* AZIMUTH : TOTAL DEPTH : LOGGED BY : *T. Pollock*

DEPTH (M)	ALTERATION					FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-feldspar	CHLORITE													
240									0.8 cm gtz-gyp-py w w sph, gyp							240		
241									Quartz Monzonite - mgp similar to above - poor salt + pepper texture because of much pink feldspar			1.5-22						
242						weak			1 cm gtz-ser-py in - hairline gyp inlts common.		100							
243						very weak	py mag		0.3 cm gtz-py in, 1 cm gtz-ser-py env.		242.6					243		
244									0.8 cm gtz-vn w sph, 2chlv. env.			93.5			47648			
245											245.7							
246																246		
247									0.3 cm gtz-py in 1 cm env.									
248									0.2 cm gyp-ser in along a fracture, 1 cm env.		100							
249									Contact @ 40°?		248.7					249		
250									Quartz Porphyry									
251									0.9 cm gtz-py in w 0.6 cm env. - mottled white (plag) + dark grey (gtz). - matrics 3%, most bio is alt to ser		100							
252									1 cm gtz-py in w mo, - locally the rock has a pink tinge from hem. staining 1.3 cm gtz-py in w tr mo. 0.5 cm env.		251.6	2%		47649				
253									hairline gyp. inlt, 0.3 cm alt. - py 2%, gtz 30%, ser 5%, rest feld. (1/3 k-feldspar)							252		
254									0.3 cm gtz-py in 0.3 cm env. - 10% of gtz is as phenos, rest of gtz is c.g. in a matrix of kldspar. - no mag or high matic clots - 2 fractures / m.		106.2							
255											254.8					255		











COMPOSITE DRILL LOG

CORE SIZE ( : *NQ* SCALE : *1:100* PROJEC ( : *Hatsoff* HOLE No. : *HA*  
 CASING COLLAR ELEV. : GROUND ELEV. : DATE STARTED : *July 25/81* PAGE No. *22* OF  
 COORDINATES : *11793 N. 12431 E.* DATE FINISHED : REF. TO CLAIM CORNER : *53m @ 000°*  
 INCLINATION : *-90°* AZIMUTH : TOTAL DEPTH : *m* LOGGED BY : *T. Pollock*

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERPICITE	CLAY	K-Feldspar													
315																	
316							<i>0.1 cm qtz-py m, 0.3 cm env.</i>	<i>Quartz Porphyry</i>		<i>315.8</i>						<i>315</i>	
317							<i>1.3 cm gyp m w sph, hb, hem, 0.5 cm env.</i>	<i>- similar to above</i>			<i>2%</i>	<i>NIL</i>		<i>47660</i>			
318										<i>96.7</i>						<i>318</i>	
319							<i>1 cm qtz-cx-py m.</i>			<i>98.8</i>							
320							<i>0.7 cm gyp m w py, sph, no env.</i> <i>1 cm qtz-sar-py m alt by below.</i>			<i>96.4</i>		<i>Tr.</i>					
321							<i>2 cm qtz-py m w mo</i> <i>319.7 - 321.7 m, no env.</i>			<i>321.6</i>						<i>321</i>	
322								<i>322.8 - 324 m : hematite stained</i>					<i>Tr.</i>				
323										<i>96.7</i>			<i>47661</i>				
324							<i>0.2 cm qtz-py m</i> <i>0.4 cm env.</i>	<i>324-327 m: 3 qtz-py ms</i> <i>8 gyp-sar-py m/lts.</i>		<i>324.6</i>						<i>324</i>	
325																	
326										<i>100</i>		<i>NIL</i>					
327																<i>327</i>	
328							<i>0.7 cm qtz m w sph</i> <i>0.4 cm env.</i>	<i>matic content 3-4%, most bio alt to ser +/- or chl + epid.</i> <i>hematite staining common.</i>		<i>327.7</i>							
329										<i>100</i>	<i>22</i>	<i>NIL</i>		<i>47662</i>			
330							<i>0.2 cm qtz-sar-py m.</i>									<i>330</i>	

COMPOSITE DRILL LOG

CORE SIZE : *N4* SCALE : *1:100* PROJECT : *Hatsoft* HOLE No. : *140*  
 CASING COLLAR ELEV. : GROUND ELEV. : DATE STARTED : *July 25/81* PAGE No. *23* OF  
 COORDINATES : *11793 N. 12431 E.* DATE FINISHED : REF. TO CLAIM CORNER : *53m @ 008°*  
 INCLINATION : *-90°* AZIMUTH : TOTAL DEPTH : LOGGED BY : *T. Pollock*

DEPTH (M)	ALTERATION					FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERPENTINE	CLAY	K-feldspar	CHLORITE													
330									Quartz Porphyry								330	
331									0.6 cm gty-py vn no env.		330.7		2.5	Fr				
332																		
333		weak				weak			0.4 cm gty-py m no env. ← trace diss. mo,		97						333	
334																		
335									0.2 cm gty-py vn. - rock varies from mottled dark grey + white to the same w a pink colour from hematite + pink k-feldspar + plag.					Nil	47663			
336											100						336	
337									3% bio, 5% bio alt to ser +/or chl.									
338						weak			3 cm gty vn w py + sph, bits a 0.8 cm gty-py vn w 0.8 cm env.		337.1			Fr				
339									0.8 cm gty vn w py + sph, no env.								339	
340									1.3 cm gty vn w tr gyp + py.									
341																		
342									0.3 cm gty-py m w mo, weak env.								342	
343									0.4 cm gty-py m w mo, 0.6 cm env. ← 343.1 - 344.m		343.1							
344	weak					very weak			fracture coated w py + mo.									
345									0.7 cm gty-py vn w cal, no env.				22	Fr	47664			345



COMPOSITE DRILL LOG

CORE SIZE : NQ SCALE : 1:100 PROJECT : Hatsott HOLE No. : H 2  
 CASING COLLAR ELEV. : GROUND ELEV. : 2930. DATE STARTED : July 25/81 PAGE No. 25 OF  
 COORDINATES : 11793 N. 12431 E. DATE FINISHED : REF. TO CLAIM CORNER : 53m @ 008°  
 INCLINATION : -90° AZIMUTH : TOTAL DEPTH : m LOGGED BY : T. Pollock

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS	
	SILICA	SERICITE	CLAY	K-feldspar														CHLORITE
360																		
361							1cm gtz-py m, no cav. 1cm gyp m w py, 0.7cm env. 0.5cm gtz m w py, MnO <sub>2</sub> , sph, hemat., 0.5 m env.	Quartz Porphyry - mottled dark grey + green - white - bio 1-5%, ser 4-5%, chl ± epid 2-3% minor diss hem,		361	96.8	2%	Tr			360		
362																		
363	weak						0.3cm gtz-py m w tr mo, thin chv.	- trace diss. mo, - gtz 25-30% max 5% plenos - locally rock very weakly porp.			100					363		
364										364			Tr					
365							0.3cm gtz-py m w no, thin chv.	363-366 - 6 gtz-ser-py ms 2 gtz-py ms						47668				
366							0.2cm gtz m w py, sph, no env				96.7						366	
367							0.3cm gtz-py m, 1cm chv.			367								
368													NSL					
369											97.0						369	
370																		
371								good porphyritic texture, - no diss mo visible		370.5			NSL		47669			
372	weak locally weak						1cm gtz m w py r sph, drs env.				96.8						372	
373							0.1cm gtz-py m w 0.4cm chv.											
374										373.5		3%	Tr					
375							1cm gtz-py m w gyp + mo, no env. 0.2cm gtz-py m w no no env.				96.6						375	

COMPOSITE DRILL LOG

CORE SIZE : **NQ** SCALE : **1:100** PROJECT : **Hatsoff** HOLE No. : **A 2**  
 CASING COLLAR ELEV. : GROUND ELEV. : **2930.0m** DATE STARTED : **July 25 181** PAGE No. **26** OF  
 COORDINATES : **11793** N. **12431** E. DATE FINISHED : REF. TO CLAIM CORNER : **53 m @ 008°**  
 INCLINATION : **-90°** AZIMUTH : TOTAL DEPTH : **m** LOGGED BY : **T. Pollock**

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE NO.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-feldspar													
375																	
376							Quartz Porphyry										
377							- max 5% bio, 5% bio altered to ser + chlorite plus minor py. - rock has a red tinge from hematite staining			96.6							
378							0.2 cm qtz - py in 0.5 cm env. - rare large feldspar phenos			96.7				47670			
379							- 2 fractures/m, - quite fresh, hard, - moderate porphyritic texture			93.5							
380										378.8							
381							0.1 cm qtz - py in, 0.7 cm env.			100							
382										382.8							
383																	
384							1.5 cm qtz in w py, sph, & sil. min. 0.5 cm env. - good porphyritic texture, qtz phenos stand out amongst a med. to fine grained matrix;							47671			
385							0.4 cm qtz - py in, no env. - large euhedral feldspar phenos common 5-10% bio,			385.7							
386																	
387																	
388							0.6 cm qtz in w py, sph, & no, env.			103.7							
389										388.4							
390							0.3 cm qtz - py in 0.5 cm env. + gyp			96.82				47672			





























COMPOSITE DRILL LOG

CORE SIZE : *NQ* SCALE : *1:100* PROJECT : *Hatso Pt* HOLE No. : *H-2*  
 CASING COLLAR ELEV. : GROUND ELEV. : *2930.0m* DATE STARTED : *July 25/81* PAGE No. *39* OF  
 COORDINATES : *11793 N. 12431 E.* DATE FINISHED : REF. TO CLAIM CORNER : *53m @ 008°*  
 INCLINATION : *90°* AZIMUTH : TOTAL DEPTH : LOGGED BY : *T. Pollock*

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-Feldspar													
570							Quartz Monzonite (fine biotite)			570.3			Mo			570	
571							0.7 cm gty-py m w mag, mag, tr, cp, no env. - bio weakly altered by chl + epid.					1.5	.04	47705			
572							0.5 cm gty-py m w sph, 1 cm env. - rare large feldspar pheno										
573							0.6 cm gty-py m w mag, mo, hem, set, 0.3 cm chr.									577	
574							3 cm sheared zone in py, gty, mo, 12 cm gty m w mo, py, 1 cm env.			98.7							
575							0.3 cm gty-py m w mag, tr mag, no mo.										
576							0.5 cm gty-py m w mag, no env. 576-577 : 6 gty-py ms (usually in mag)									576	
577							0.9 cm gty-k-feldspar m w py, mag, 0.9 cm env. 5 gty-seg-py ms			576.3							
578																	
579							1 cm gty-py m    to C.A. w tr spl + gyp.									579	
580							1.3 cm gty-py m w mo, 0.5 cm env.										
581							1 cm gty-py m w mo, 1 cm env.			100							
582							0.7 cm gty-py m w mo, mag, tr hem, no env. 582-585 : 14 gty-py ms (many w mo)									582	
583							2 cm gty-py m w mo, gyp, no env.										
584																	
585							Contact @ 60° Diss. mo + weak White - Plag-gty dyke Stockwork of gty-py-mo ms. 584.55-			583.9			.08	47707		585	

COMPOSITE DRILL LOG

CORE SIZE : *NQ* SCALE : *1:100* PROJE : *Hatsott* HOLE No. : *HA*  
 CASING COLLAR ELEV. : GROUND ELEV. : *2930.0m* DATE STARTED : *July 25/81* PAGE No. *40* OF  
 COORDINATES : *11793 N. 12431 E.* DATE FINISHED : REF. TO CLAIM CORNER : *53m @ 008°*  
 INCLINATION : *-90°* AZIMUTH : TOTAL DEPTH : *m* LOGGED BY : *T. Pollock*

DEPTH (M)	ALTERATION					FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-feldspar	CHLORITE													
585									Contact @ 60°								585	
586									0.8cm gty-py in w mo, tr. gyp, 0.5cm env.									
587									Quartz Monzonite (fine biotite)									
588									- f.g., dirty looking from the fine bio 15% bio, weakly altered by ch		100%	22%					588	
589									0.1cm gyp in cuts a 0.3cm gty-py in, no env. 3cm aphanitic k-feld. dyke.									
590									0.8 cm gty-py in mag, mo, tr sp; 0.7 cm env.		588.5				47708			
591																		591
592											100							
593									591-594: 4 gty-py ms 3 gty-ser-py ms									
594									0.4cm gty-k-feld. in w mo, 0.8cm env, 1.1cm aphanitic k-feld dyke cuts 0.7cm gty-py in w mag, mo, 0.2cm env.									594
595									0.8cm gty-py in w mo, 0.1cm env.		594.1							
596									Fracture w mo coating						47709			
597									0.7cm gty-py in w mag, mag gyp, 0.2cm env,		98.0							597
598									Fracture coated w mo 0.2cm gty in w py, mo, no env.									
599									0.7cm gty-ser in w sph, WO3, 1cm env.									
600									0.2cm gty in w mo no env.		99.5	17%						600

COMPOSITE DRILL LOG

CORE SIZE : NQ SCALE : 1:100 PROJE : Hatsoff HOLE No. : 160  
 CASING COLLAR ELEV. : GROUND ELEV. : 2930.0m DATE STARTED : July 25/81 PAGE No. 41 OF  
 COORDINATES : 11793 N. 12431 E. DATE FINISHED : REF. TO CLAIM CORNER : 53 m @ 008°  
 INCLINATION : -80° AZIMUTH : TOTAL DEPTH : m LOGGED BY : T. Pollock

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE NO.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-ALYPOX													
600																600	
601							Quartz Monzonite										
602					weak		0.8 cm qtz - py in sil. matrix tr mo. - f.g. - mag. 10-15% big, bio weakly dirty - ed. qtz 15%, homogeneous, relatively hard, fresh - rock has a dirty appearance.		44.5	22				4770			
603					moderate		0.2 cm qtz in sil. mag, tr py, no ker.										
604							0.4 cm qtz - py in sil. mag, mo, 50.31 cm env.		60.2								603
605																	
606										98.1							606
607							1.5 cm qtz - ser in										
608							0.2 cm qtz in sil. mag, tr py, no ker.										
609							0.3 cm qtz - py in sil. mag, 0.2 cm env. 609-612: 6 qtz - py in sil. mag, 5 qtz - ser - py in sil. mag		60.3					4771			609
610							0.2 cm qtz in sil. mag, no env but rock has saucy plg.										
611					moderate		Sperry - Sun @ 609.6m Azimuth 26°, Incr 86°										
612							rock is locally strongly broken,		96.6								
613							0.2 cm qtz in sil. mag + py no env cut by a 1cm k-feld in sil. mag mo coated fracture.		613.3								612
614																	
615							2-0.2 cm qtz - mo in sil. mag + py. 10cm split dyke in sil. mag. tr carb. minor env		96.8				.02	4772			615









COMPOSITE DRILL LOG

CORE SIZE : NP SCALE : 1:100 PROJECT : Hatsoff HOLE No. : 40-  
 CASING COLLAR ELEV. : GROUND ELEV. : 2930.0m DATE STARTED : July 25/81 PAGE No. 45 OF  
 COORDINATES : 11793 N. 11243 E. DATE FINISHED : REF. TO CLAIM CORNER : 53m @ 008°  
 INCLINATION : -90° AZIMUTH : TOTAL DEPTH : m LOGGED BY : T. Pollock

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS:	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	ESTIMATED	SAMPLE NO.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-feldspar													
660							1.5m gty in py, mag, mo env. Contact sharp @ 15°									660	
661							2cm gty-py in mag, cp, mo, hem, 2cm env.										
662							1.5m gty-py in mag, mo, cp, hem env. ← this is cut by a v.f.g. aplite dyke, pink.			90.6				47720			
663							0.3m gty-py in mo 0.5cm env.			66.5							663
664							-10% bio-weakly chloritized, 20% gty, 2/5 of total kldspar -k-kldspar										
665							1.3cm gty - py in mag, mo, Wb, sph, sil. min, 2cm env. fresh, hard, occasional large feldspar phen.										
666							0.1cm gty in mo, py no env.										666
667							0.5cm gty-py in mo, mag, hem, 0.5cm env.			90.3							
668							666-669: 7 gty-py in mag, 3 gty-ss-py in mag.										
669																	669
670							0.8cm gty in mo, py no env. Contact @ 90°			66.6							
671							0.1cm gty-py in mag, mo, hem, 0.2cm env. Qtz-Biotite-Feldspar Porphyry Dyke - similar to above.										
672							0.3cm gty-py in mo, mag, hem			90.3							672
673							Contact sharp @ 40°										
674							Quartz Monzonite - locally minor phg clay altered.										
675							0.3cm gty-py in mo							47722			675



COMPOSITE DRILL LOG

CORE SIZE : *NQ* SCALE : *1:100* PROJECT : *Hatsoff* HOLE No. : *H0*  
 CASING COLLAR ELEV. : GROUND ELEV. : *2930.0m* DATE STARTED : *July 25/81* PAGE No. *47* OF -  
 COORDINATES : *11793* N. *12431* E. DATE FINISHED : REF. TO CLAIM CORNER : *53m @ 008°*  
 INCLINATION : *-90°* AZIMUTH : TOTAL DEPTH : LOGGED BY : *T. Pollock*

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-Feldspar													
690								2 cm qtz m w tr pyr mo, no env.								690	
691								- overall green tinge, 2-3% qtz phenos,				2%	.2%				
692								- contains diss. mo,				96.7					
693								- some plag phenos clay altered,									
693								0.2 cm qtz - pyr m w mag, tr, th, mo,								693	
694								Mo coated fracture		694.0							
695													.15	47726			
696								0.2 cm qtz - pyr m w mo, 0.3 cm env.								696	
697								0.2 cm qtz - pyr m w mo, no env.									
698								diss mo ends, qtz monazite similar to above, bio locally chloritized		100.0							
698								0.3 cm qtz - pyr m w mo, no env.									
699								0.5 cm qtz m, no env.								699	
700										700.1							
701								0.5 cm qtz m w gyp no env.									
702								0.2 cm qtz m w mo, py, no env.									
703								- locally porphyritic from qtz phenos, trace diss mo,									
703								0.2 cm qtz m w py + mo, no env.		100.0							
704								702-705 m: 8 qtz m usually in mo, py 4 qtz - sr - py m.									
705								0.5 m qtz m w mo				1.5	Tr			705	







COMPOSITE DRILL LOG

CORE SIZE : CASING COLLAR ELEV. : COORDINATES : INCLINATION : SCALE : GROUND ELEV. : AZIMUTH : PROJECT : DATE STARTED : DATE FINISHED : TOTAL DEPTH : HOLE No. : PAGE No. : REF. TO CLAIM CORNER : LOGGED BY :

1:100 : 2930.0m : 11793 N. 12431 E. : -90° : Hatsoff : July 25/81 : 51 OF : 53 m @ 008° : T. Pollock

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE RECY/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	ESTIMATED %	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-Feldspar													
750								Quartz, Monomite								750	
751							1.8 cm v.f.g. pl-pag in no mo.	-mig, salt & pepper texture,									
752							0.3 cm sty in pyro 0.4 cm dril	-large (avg len) feld pheno quite amon.			101.7		12	Tr			
753							0.2 cm gt-mo in	-weak diss mag, mo, trace diss ro.									
754							2-0.1cm gt-mo in in ben gt-plag dyke.			7592						753	
755							0.2 cm gt-mo in no coated fracture.								47736		
756							0.3 cm gt-mo in in py.				12.9						
757							0.2 cm gt-mo in.										
758							0.2 cm gt-mo in.			7574							
759											12.6						
760							0.2 cm gt-mo in.			7599					47737		
761																	
762							Fracture along 0.2 cm gt-py in in hem, mag, mo.										
763							0.2 cm gt-mo in.				97.6						
764																	
765										7641							





COMPOSITE DRILL LOG

CORE SIZE : BQ SCALE : 1/100 PROJECT : Hatsoff HOLE No. : 40  
 CASING COLLAR ELEV. : GROUND ELEV. : 2930.0m DATE STARTED : July 25 1981 PAGE No. 53 OF  
 COORDINATES : 11793 N. 12431 E. DATE FINISHED : REF. TO CLAIM CORNER : 53m @ 008°  
 INCLINATION : -90° AZIMUTH : TOTAL DEPTH : m LOGGED BY : T. Pollock

DEPTH (m)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS:	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (m)	ASSAYS
	SILICA	SERICITE	CLAY	K-feldspar													
780																	
781	weak						1.7 cm qtz in py, mo, minor 0.9 cm qtz - py in mo to hem, lam. cov. 10um zone of qtz, ser-mo, minor py	Quartz Monzonite -mg. pale green colour from altered plagi.		97.5	12						
782	moderate						no coated fracture cuts 2 hairline no mlt's.	large feld. phenos common, - the rock has suffered		98.2							
783	moderate						0.1 cm qtz - mo in. 0.6 cm qtz in cuts + offsets ~ 0.5 cm qtz - mo in.	some silicification from the veining		98.2							
784	weak						0.5 cm qtz - mo in, minor py & hem.			96.5							
785	locally weak						0.3 cm qtz - mo in py, hem										
786	locally weak						1 cm qtz in py.	783-786 - min 17 qtz - mo in		78.6							
787							1 cm pink aphanitic dyke in no on contacts			100							
788																	
789							0.1 cm qtz - mo in. qtz - mo in, max 0.4 cm			96.5							
790								- mg. large feldspar phenos common - where the rock has not been alt									
791							0.2 cm qtz - mo in	partially to clay ± minor silicification bio is weakly alt to chl + epid.									
792							0.2 cm qtz - mo in. 2-0.3 cm qtz - mo in.	local hematite stain, mag present where only prophyllitic alt exists.									
793							0.3 cm qtz - mo in offset by no coated fracture			96.7							
794																	
795							3 cm aphanitic cream dyke in diss mo.			79.9							







COMPOSITE DRILL LOG

CORE SIZE : SCALE : 1:100 PROJECT : Hatsoff HOLE No. : 40  
 CASING COLLAR ELEV. : GROUND ELEV. : 2930.0m DATE STARTED : July 25/81 PAGE No. 57 OF  
 COORDINATES : 11793 N. 12431 E. DATE FINISHED : REF. TO CLAIM CORNER : 53m @ 0080  
 INCLINATION : - 90 AZIMUTH : TOTAL DEPTH : m LOGGED BY : T. Pollack

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE NO.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-feldspar													
840																	
841							0.6 cm qtz-py in s sph, 2 py, sil. mm, low env.	Quartz, Monzonite -mg, hard, locally weak salt + pepper		840.9						840	
842							0.6 cm qtz-mo in s py low env.	texture, bio weakly alt. to chl., diss mag, sph in vns + envelopes common			12		.03				
843							0.1 cm qtz-mo in	10-15% bio, feldspar phenos (large) common,									843
844																	
845																	
846							0.6 cm qtz-mo in mo + py 0.5 cm chl.	843-846: 19 qtz-mo in s									846
847							2-0.6 cm qtz-k-feldspar in s cut a qtz-mo in, vns here 1.5m env.										
848							0.7 cm qtz-mo in 2-1cm pink k-feld. qtz in s				96.9			Tr			
849																	849
850							3.5 cm qtz-ser-py in s sph, cuts a 0.1 cm qtz-mo in 4cm qtz-k-feld in s + sph plus Fl, sph, py.	849-852: 12 qtz-mo in s									
851							0.2 cm qtz-mo in							Tr			
852							4cm pink qtz-k-feld. in beside this a 0.5 cm qtz-mo in.										852
853																	
854																	
855							0.1 cm qtz-mo in. 2-0.2 cm qtz-mo in s							Tr			855









COMPOSITE DRILL LOG

CORE SIZE : *BQ* SCALE : *1:100* PROJECT : *Hatsoff* HOLE No. : *HO*  
 CASING COLLAR ELEV. : GROUND ELEV. : *2930.0m* DATE STARTED : *July 25/81* PAGE No. *61* OF  
 COORDINATES : *11793 N. 12431 E.* DATE FINISHED : REF. TO CLAIM CORNER : *53M @ 008°*  
 INCLINATION : *-90°* AZIMUTH : TOTAL DEPTH : LOGGED BY : *T. Pollock*

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE NO.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-Feldspar													
900																	
901																	
902																	
903																	
904																	
905																	
906																	
907																	
908																	
909																	
910																	
911																	
912																	
913																	
914																	
915																	

*weak*  
*locally weak*  
*weak*  
*moderate*  
*py mag, no gyp*  
*py*

DESCRIPTIVE GEOLOGY

*0.8 cm gty-ser with py + 1 hem + mo. Quartz Monzonite*

*0.2 cm gyp m cuts a 0.3 cm n.g. phase, large white feld phos gty m w py + sph. common, generally good salt & 0.1 cm gty-mo m. pepper texture, fresh + hard,*

*1.5 cm gty-ser-py m, 2 cm gty-ser- k-feld, chl env. bio weakly alt. to chl-epid. - occasional gyp m.*

*0.2 cm gty-mo m.*

*0.3 cm gty-mo m.*

*0.5 cm gty m w mo, ser*

*0.1 cm gyp m.*

*fluorine (purple) in patches begins here - where much salmon pink k-feld spar present → diss mo + mo mts + much fl.*

*0.2 cm gty-mo-ser m.*

*0.5 cm gty m w mo, fl.*

*0.3 cm gty-ser-py m.*

*1 cm gty-ser-py m w mo, no env.*

*0.2 cm gty-mo mo.*

*1.2 cm gty m w fl, mus., no env.*

*1.5 cm gty-ser-py m.*

*0.4 cm gty m w fl mo,*

*1.5 cm env w k-feld, ser, fl, py.*

900

901

902

903

904

905

906

907

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914

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47764

47765

47766

10

COMPOSITE DRILL LOG

CORE SIZE : BQ SCALE : 1:100 PROJECT : Hatsoff  
 CASING COLLAR ELEV.: GROUND ELEV.: 2930.0m DATE STARTED : July 25/81 HOLE No. : 140  
 COORDINATES : 11793 N. 12431 E. DATE FINISHED : REF. TO CLAIM CORNER : 53 m @ 008°  
 INCLINATION : -90° AZIMUTH : TOTAL DEPTH : LOGGED BY : J. Pollock

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-Feldspar													
915																	
916							Quartz Monzonite	0.3 cm qtz in w to mo.									
917								mag. hard, fresh, mottled pink-black, diss mag.				12		47767			
918								10-15% bio., bio unaltered except where potassic alt present then bio alt. to ser+py.		98.2							
919								0.3 cm barren gty in		98.7							
920								0.1 cm gty-mo v.	915-918 - 9 gty vms some w mo				Tr				
921								0.1 cm gty-mo v.		96.2							
922								0.2 cm gty-mo v.		92.1							
923								0.3 cm gty-mo v.	chloritization of bio type continues, fl present where potassic alt. occurs				Tr	47768			
924								0.3 cm gty-mo v. in w py		95.6							
925								1.2 cm gty-ser-py v.									
926								0.4 cm gty in w 0.5 cm env w ser-py, gty to mo.		92.0				Tr			
927								0.5 cm gty in w ser, mo, py, 0.5 cm env		93.3							
928								0.4 cm gty in w mo, py		92.5							
929								0.4 cm gty in w py, mus.		100				Tr	47769		
930								0.3 cm gty v.		100	52						





COMPOSITE DRILL LOG

CORE SIZE : BQ SCALE : 1:100 PROJECT : Hatsoff HOLE No. : HD  
 CASING COLLAR ELEV. : GROUND ELEV. : 2930.0m DATE STARTED : July 25/81 PAGE No. 65 OF  
 COORDINATES : 11793 N. 12931 E. DATE FINISHED : REF. TO CLAIM CORNER : 53m @ 008°  
 INCLINATION : -90° AZIMUTH : TOTAL DEPTH : m LOGGED BY : T. Pollock

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS:	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	ESTIMATED	SAMPLE NO.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-feldspar													
960							Qtz-ser-py ms w mag.										
961							3-0.1 cm qtz-mo ms.	Quartz Monzonite		96.7							
962							0.8 cm qtz-mo m.	-m.g. phase, large feld.				12					
963							2 cm gtz-ser-py m.	plines common,		93.9							
964							0.7 cm qtz m w fl, mo	-locally strongly broken, commonly									
965							0.6 cm ser.	where there is 2ndary k-feldspar		96.0							
966							0.9 cm qtz m w k-fld, mag, py, mo	Qtz-ser-py ms much more common		96.3							
967							8 cm aplite dyke	than over the last 200 m.		96.8							
968							0.5 cm qtz m w mo.			95.3				47775			
969							1 cm qtz m w k-fld, mo.			93.3							
970							0.3 cm qtz-mo m.			96.7							
971							0.3 cm gtz-mo m.			96.9							
972							0.7 cm gtz-k-feld m w tr gyp, mo.	970-972: drussy, locally crumbly		970.8							
973							1.5 cm qtz m w mo, fl, 0.6 cm ser.	strongly broken.		100							
974							0.2 cm qtz-mo-py m.			973.7		1%					
975							0.2 cm gtz-py m w mag.	972-975: 4 gtz ms w mo		975							

COMPOSITE DRILL LOG

CORE SIZE : *BQ* SCALE : *1:100* PROJECT : *Hatzoff* HOLE No. : *HO-*  
 CASING COLLAR ELEV. : GROUND ELEV. : *2930.0m* DATE STARTED : *July 25/81* PAGE No. *66* OF  
 COORDINATES : *11793* N. *12431* E. DATE FINISHED : REF. TO CLAIM CORNER : *53m @ 008°*  
 INCLINATION : *-90°* AZIMUTH : TOTAL DEPTH : LOGGED BY : *T. Pollock*

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-feldspar													
975								0.3 cm qtz-py in w ser.									
976								0.1 cm qtz in w 0.4 cm env.									
977								0.4 cm qtz-ser-py in cuts a 0.2 cm qtz-mo in									
978								2 cm qtz in w k-feld along contacts tr py.									
979								0.6 cm qtz in w mo, py, mag, 0.3 cm env.									
980																	
981																	
982								0.4 cm qtz-py in w mag,									
983																	
984																	
985								0.2 cm qtz in w ser, py.									
986								0.3 cm qtz-mo in.									
987								0.5 cm qtz-mo in.									
988								1 cm qtz in w py, mo, mag, fl.									
989								0.3 k-feld. env.									
990								0.1 cm py in w ser, qtz, 0.3 cm env.									

DESCRIPTIVE GEOLOGY

ALTERATION: SILICA, SERICITE, CLAY, K-feldspar, CHERTITE  
 FRACTURING: moderate, weak, very weak  
 MINERALS: py, mag, qtz, k-feldspar, ser, mo, mag, fl.

COMMENTS: 978.9-979.3: strong sericite, fl, k-feldspar, py.  
 981-984: 9 qtz-ser-py in s, 4 qtz in w mo.  
 - good salt + pepper texture  
 - large pale pink to white feldspar phases common

DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)
975.0	97.5	1.5	T	47777		975
977.8	97.8		T			978
981.2	97.1		T			981
981.2	98.2		T	47778		984
985.4	97.6		T	47779		987
985.4	97.4		T			987
987.0	97.0		T	47779		987
989.0	97.0		T			989
990.0	97.0		T			990

COMPOSITE DRILL LOG

CORE SIZE : *B8* SCALE : *1:100* PROJECT : *Watsoff* HOLE No. : *40*  
 CASING COLLAR ELEV. : GROUND ELEV. : *2930.0m* DATE STARTED : *July 25/81* PAGE No. *67* OF  
 COORDINATES : *11793 N. 12431 E.* DATE FINISHED : REF. TO CLAIM CORNER : *53m @ 008°*  
 INCLINATION : *-90°* AZIMUTH : TOTAL DEPTH : LOGGED BY : *T. Pollock*

DEPTH (M)	ALTERATION					FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE NO.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERPENTINE	CLAY	V-L/Aspar	CHLORITE													
990									0.1 cm gyp vn. <i>Quartz Monzonite</i>							990		
991									0.1 cm gty - py vn w 0.3 cm env. - m.g., good salt & pepper texture, hard, fresh, large feldspar			12%	Tr					
992									0.8 cm gty vn, 0.5 cm env cuts phenos, common, locally weakly porphyritic from gty phenos.									
993									a 0.2 cm gty vn w mo							993		
994									0.6 cm gty, chert ser, mo, py, mag, no env									
995									0.7 cm gty vn w py, k-feld, mo, fl, mag					47780				
996									0.4 cm gty vn w py + fl cuts a gty - ser - py ch.									
997									4 cm gty vn w py, mo, fl, mag minor k-feldspar, no env, minor orthoquartz.							996		
998									0.3 cm gty - mo vn.									
999									0.1 cm gty - mo vn.							999		
1000									999-1002: 2 gty - mo ms									
1001									5 gty - ser - py ms									
1002									0.3 cm gty vn w mo, py, mag.					47781				
1003									0.1 cm gty py vn w 0.4 cm env.									
1004									0.3 cm gty py vn w mag, 0.3 cm env.							1002	0.6	
1005									0.7 cm gty - k-feld. vn w mo, fl, cuts 0.3 cm gty - ser - py vn.							1005		

very weak

weak

py, mag, mo

weak

py, mo, mag, fl











COMPOSITE DRILL LOG

CORE SIZE : **BQ** SCALE : **1:100** PROJECT : **Hatsoff** HOLE No. : **140**  
 CASING COLLAR ELEV. : GROUND ELEV. : **2930.0m** DATE STARTED : **July 25/81** PAGE No. **72** OF  
 COORDINATES : **11793 N. 12431 E.** DATE FINISHED : REF. TO CLAIM CORNER : **53m @ 008°**  
 INCLINATION : **-90°** AZIMUTH : TOTAL DEPTH : LOGGED BY : **T. Pollock**

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS:	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-Feldspar													
1065																	
1066							7cm qtz-ser-py in cuts a 0.2cm qtz-mo in.					1.5%	Tr			1065	
1067							Quartz, Monzonite - similar to above - .5% diss magy										
1068							- increase in mo here										
1069							0.2cm qtz-mo in.									1068	
1070							1.3cm qtz-mo in w py.	1068-1071m: 3 qtz-mo in 3 qtz-ser-py in					Tr	47793			
1071							- good large qtz-mo in here										
1072							1.4cm qtz in w py, mo, mag, fl. - in changes into pink qtz-plag-k-feld in 0.3cm qtz-mo in.									1071	
1073							1.5cm qtz in w mo, py, mag						.08	47794			
1074							0.3cm qtz-mo in.										
1075							0.1cm qtz-mo in.										
1076							0.5cm qtz-ser-py in, weak pot. alt. env.									1074	
1077							0.3cm qtz-mo in, 3cm qtz-k-feld env, bio alt. to chl.										
1078							0.6cm qtz in w mo, py, mag, k-feld, fl.										
1079							0.3cm in of fl, py, mo, 0.5cm k-feld env. very weakly porphyritic peg. patch to mag, fl. from qtz phenos, 0.1cm qtz in w py, ser, 0.6cm qtz-k-feld. env. rock has been strained, qtz phenos are broken						.06	47795		1077	
1080							0.8cm qtz-musc-py in w 1.5cm envs w stroph. & rock has weak 0.4cm qtz in w 0.2cm env then 1cm pot. alt. env. foliations. 7cm qtz-ser-py in, minor k-feld. @ contacts. 0.2cm qtz in w ser + py plus mo weak pot. env.							47796		1078	















COMPOSITE DRILL LOG

CORE SIZE : BQ SCALE : 1:100 PROJECT : Natsoff HOLE No. : 140  
 CASING COLLAR ELEV. : GROUND ELEV. : 2930.0m DATE STARTED : July 25/81 PAGE No. 79 OF  
 COORDINATES : 11793 N. 12431 E. DATE FINISHED : REF. TO CLAIM CORNER : 53m @ 008°  
 INCLINATION : -90° AZIMUTH : TOTAL DEPTH : LOGGED BY : T. Pollock

DEPTH (M)	ALTERATION				FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-feldspar													
1170								Quartz Monzonite								1170	
1171							0.4 cm qtz, int w mo, fl, py, 0.3 cm pot. env.	similar to above			1.5	Tr		47815			
1172							0.7 cm qtz, int w fl, ser, mo, py, 1 cm pot. env.	mainly salt + pepper texture									
1173							0.5 cm qtz - py int w mo, fl, 1 cm env.	1170-1173: 5 qtz int w mo								1173	
1174							0.2 cm qtz - ser - py int.	5 qtz - ser - py int									
1175							0.3 cm qtz, int w py, ser, mo, fl, 0.5 cm pot. env.										
1176							1 cm qtz - ser - py int w mo, fl, 0.8 cm pot. env w mo										
1177							0.3 cm qtz - py int w sph, wds.									1176	
1178							0.2 cm qtz - k-feld. int w py, no, ser.										
1179							2 cm qtz - k-feld int w tr mo.										
1180																	
1181							3 cm qtz - ser - py int	small pink apite int									
1182							2 cm aplite dyke, pale pink	common.									
1183							3 cm pink apite int cuts a 0.1 cm qtz - mon.									1182	
1184							1.5 cm qtz int w py, fl, sph, sil. int. cuts a 0.1 cm qtz - mon.										
1185							2-2 cm pink apite int										
							14 cm pink apite dyke.							47817		1185	



COMPOSITE DRILL LOG

CORE SIZE : BQ SCALE : 1:100 PROJECT : Hadsoff HOLE No. : HD 2  
 CASING COLLAR ELEV. : 2930.6 GROUND ELEV. : 2930.0m DATE STARTED : July 25/81 PAGE No. 82 OF 82  
 COORDINATES : 11743 N. 12431 E. DATE FINISHED : Aug 5/81 REF. TO CLAIM CORNER : 53 m @ 008°  
 INCLINATION : -90° AZIMUTH : TOTAL DEPTH : 1219.5 m LOGGED BY : T. Pollock

DEPTH (M)	ALTERATION					FRACTURING	MINERALS	GEOLOGY	COMMENTS :	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	% SULPHIDES	% ESTIMATED	SAMPLE No.	% SAMPLE RECOVERED	SAMPLE INTERVAL (M)	ASSAYS
	SILICA	SERICITE	CLAY	K-Feldspar	CHLORITE													
1215									3cm qtz in w py, sph, fl, sil, min								1215	
1216									1.5cm env. 0.5cm qtz in w py, fl, 1cm gfs py in w mo, 2cm env.				5					
1217									1.3cm gfs - ser - py in w 0.6cm pot env.									
1218									0.5cm gfs - py in sph, 3cm env. 5cm pink aptite in, 2cm gfs - ser - py env.								1218	
1219																		
1220									End of Hole 1219.5 m								1219.5	

very weak

weak

py in w sph, fl, sil

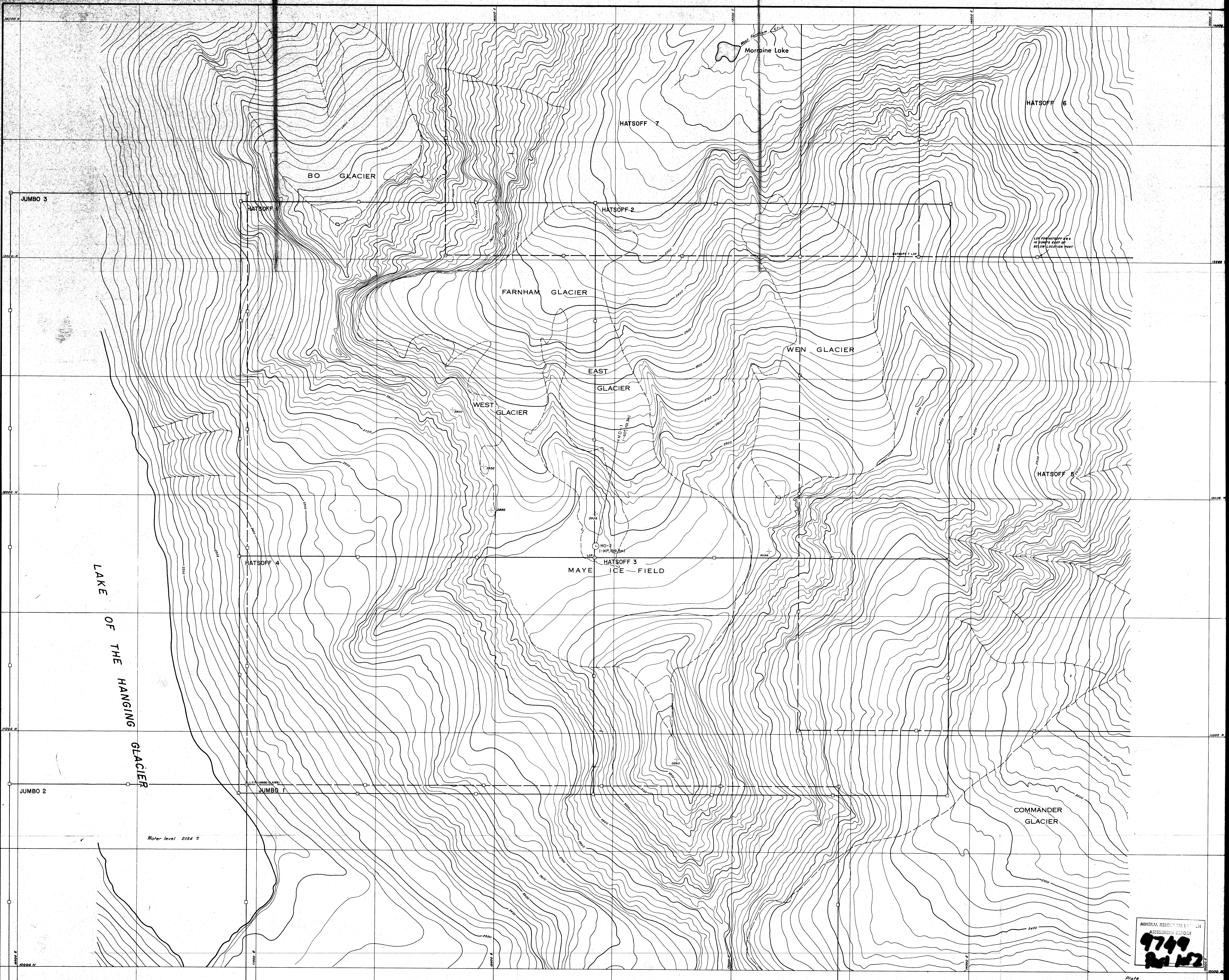
Quartz Monzonite  
 fresh, hard, good salt  
 + pepper texture.

NTL

47823

Tr





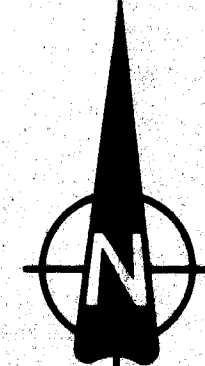
LAKE OF THE HANGING GLACIER

Water level 2154 ±

- LEGEND:**
- Topographic contour in meters
  - Elevation control point in meters
  - Limit of glacier
  - Creek
  - Diamond drill hole HO-1 drilled during the period of August 6 - August 21, 1980 (Elevations 4017m to 4024m - 13024, 13011)
  - D.D.H. HO-2 drilled from July 25 - Aug 5, 1981.
  - Legal corner post
  - Corner post or identification post
  - Corner post or identification post not placed

NOTE: Corner post and boundary locations were established by plan and survey, and topographic map.

MINERAL RESOURCES EXPLORATION  
ASSESSMENT REPORT  
**9749**  
**201 152**



**UTAH MINES LTD.**  
EXPLORATION DEPARTMENT  
VANCOUVER BRITISH COLUMBIA

**HATSOFF Mo PROSPECT**

**DIAMOND DRILL HOLE  
COLLAR LOCATION PLAN**

Work by T.R.P.	Date Oct. 1980	NTS Ref. 62M-7E
Drawn by J.N. Gopal	Revised Nov. 1981	

SCALE: 1:15000