

83-#297-#1187

DIAMOND DRILL ASSESSMENT REPORT
KUTCHO CREEK PROPERTY
JEFF GROUP

LIARD MINING DIVISION
104I/1W
58°12'N 128°21'W

for

ESSO MINERALS CANADA
600-1281 West Georgia Street
Vancouver, B.C.
V6E 3J7

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

by

Dane Bridge

May, 1983

11,187

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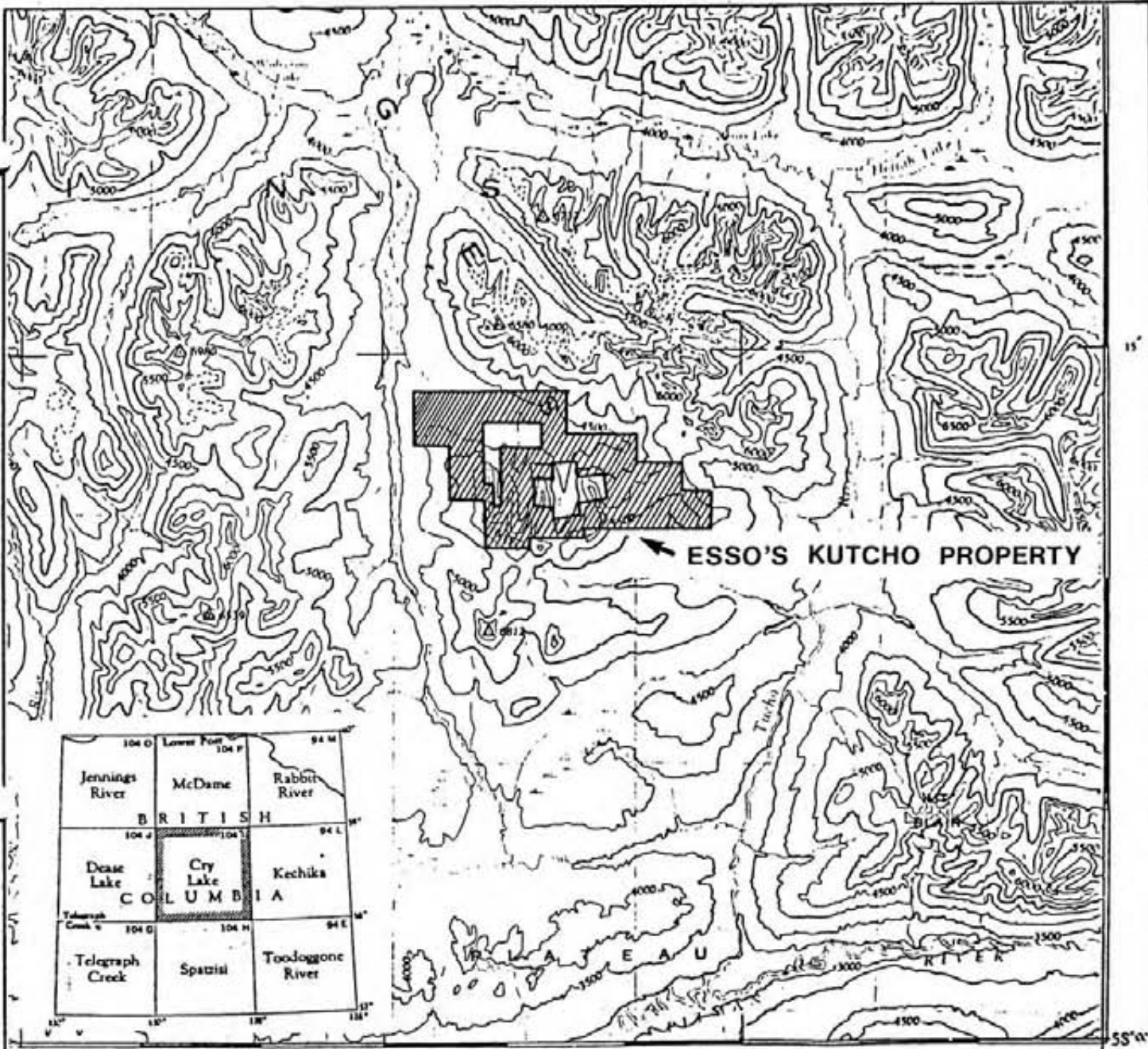
INTRODUCTION

The Kutcho property is located at $58^{\circ}21^{12}'N$ $128^{\circ}21'W$ about 200 km south of Watson Lake, Yukon. The area is in mountainous terrain in the Cassiar mountains.

The property is about 14 km long in east-west direction and extends easterly from the east side of Kutcho Creek. Access is from the Kutcho air strip on the west side of Kutcho Creek. Sumac Mines Limited built a road in 1982 from the air strip to the central part of the property. The property is owned and operated by Esso Minerals Canada and includes claims held by Sumac Mines Limited.

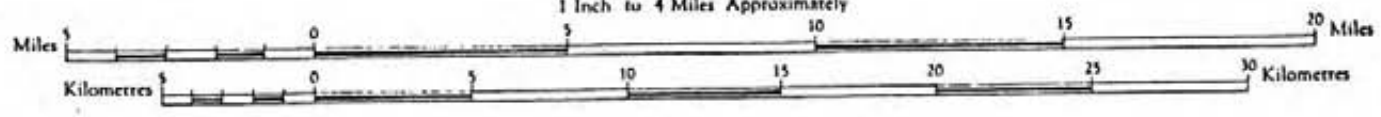
This report describes 346.6 meters of BQ diamond drilling done in DDH 98 (102) in September, 1982. The hole was incorrectly called DDH 98 when it should have been DDH 102. Since it has been documented as DDH 98 in company reports it will now be referred to as DDH 98 (102).

Core is stored at the camp.



ESSO MINERALS CANADA
KUTCHO CREEK PROPERTY

Scale 1 : 250,000
 1 Inch to 4 Miles Approximately

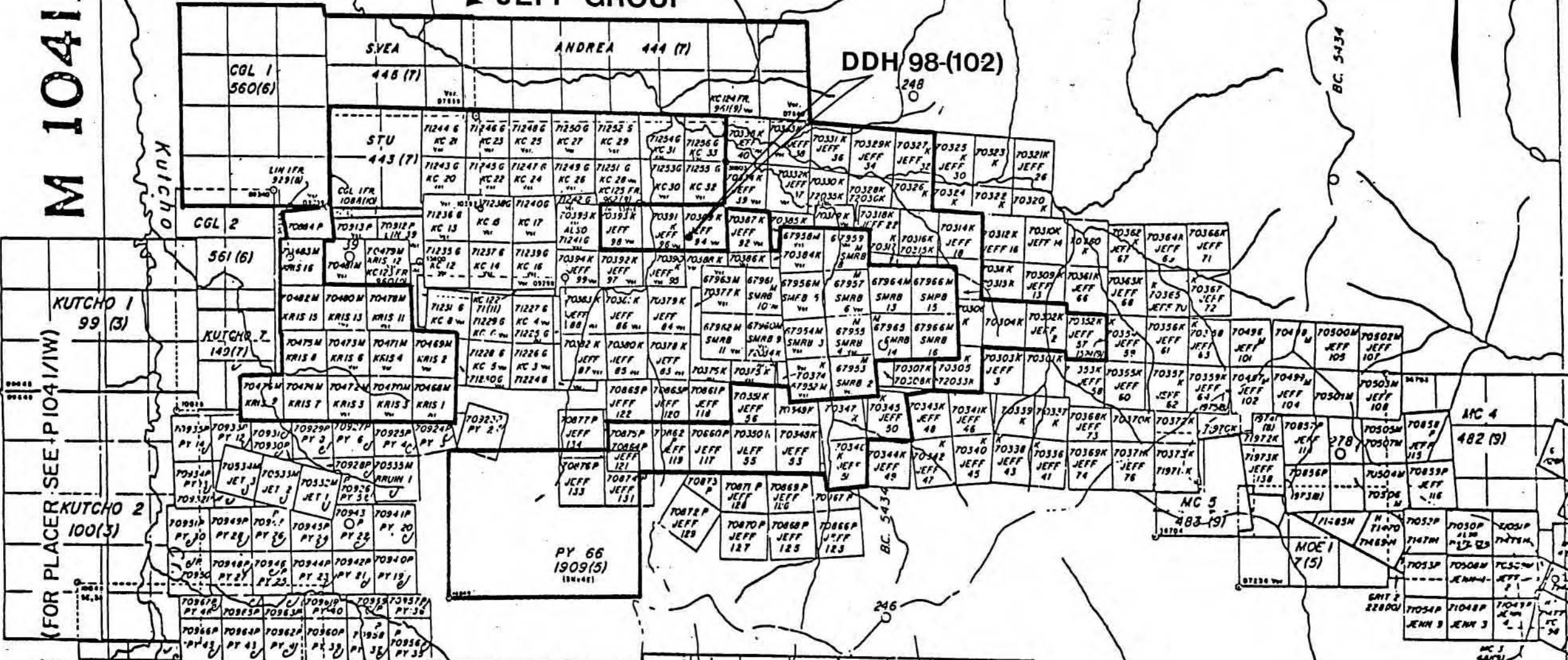


58° 15' 128° 3d

128° 15'

M 1041/IW

JEFF GROUP



(FOR PLACER SEE P1041/IW)

JEFF GROUP AND DDH LOCATION

Scale 1:50,000



GEOLOGY

Mineralization at Kutcho Creek consists of stratiform, volcanogenic massive pyrite with base metal sulphides. The sulphides occur near the transition from volcanic to mixed volcanic and sedimentary rocks within the Triassic or older Kutcho assemblage.

The following is a description of the lithologic units encountered in drilling on the Kutcho property. They are arranged from youngest to oldest which is the sequence in which they are encountered in drilling. The quoted thicknesses are the maximum apparent true thicknesses encountered in drilling prior to 1979 or an estimate:

Limestone, 125 m

Massive recrystallized limestone.

Conglomerate, 150-160 m

Strongly foliated polymictic conglomerate composed of predominately silicic clasts derived from the volcanic pile. The base of the conglomerate unit has been intersected in 6 holes. It is always underlain by rocks of the basic unit.

Tuff-Argillite Unit, 350 m in area north of Esso's camp to 440 to 470 m thick 3 km west

This unit represents a conformable transition from the underlying silicic volcanic rocks to very fine-grained, silicic, graded water-lain tuffs, argillite, siltstone and epiclastic rocks. It consists mainly of tuffs and slightly argillaceous tuffs metamorphosed to quartz-chlorite-sericite-biotite schists. Fine laminations, graded bedding and quartz phenocrysts are unaffected by the development of foliation.

A black, calcareous, graphitic argillite commonly occurs a few meters above the base of the unit. A mixed unit of argillite and argillaceous tuff commonly occurs approximately 100 to 150 m above the base

of the tuff-argillite unit. The main lithology in the upper portion of the unit is a silicic siltstone with minor megascopically visible biotite. Minor disseminated pyrrhotite \pm pyrite is ubiquitous in the tuff-argillite unit.

Basic Unit, Variable Thickness

Basaltic to andesitic flows and tuffs? occur from immediately below the ore horizon to the base of the conglomerate unit. They are most abundant within the stratigraphic interval of the tuff-argillite unit. Here they account for 33 to 82% of the section and generally make up 50% of the section directly overlying the ore horizon.

The basic unit rocks were previously called metagabbro. They include massive basalt, basic schist, amphibolitic flows, amphibolitic flows with plagioclase phenocrysts, plagioclase porphyries and plagioclase porphyries with minor quartz phenocrysts. Variations from massive, amphibolitic units to plagioclase porphyries are the most common rocks in the basic unit.

The basic rocks are commonly weakly foliated and contain chlorite, epidote-clinozoisite and biotite. Locally they are intensely altered to carbonate-sericite.

Quartz Feldspar Crystal Tuff (QFCT), 200 m

The QFCT and Phylite Tuff units overlie the ore horizon. The ore zones occur slightly up-dip (south) of a facies change between the QFCT and Rhyolite Tuff units. The QFCT unit is graded and tuffaceous at the top but could be a flow.

Two main phases occur in the QFCT. The most abundant phase is a very homogeneous quartz-feldspar-sericite-chlorite-carbonate schist with abundant quartz phenocrysts, commonly up to 1 cm, and fewer plagioclase phenocrysts. The rock has a distinctive porphyritic or crystal tuff texture and is variably sericitic or chloritic. Immediately above ore it is intensely sericitized.

A coarse breccia phase occurs in the middle to upper parts of the unit but is not always present. It contains small to 1 m fragments texturally identical to the matrix and minor fine-grained chloritic fragments. The breccia phase is commonly heavily altered to epidote-clinozoisite.

Rhyolite Tuff, 155 m

This unit is facies equivalent with the QFCT unit. It develops along the down-dip (north) edge of the massive sulphide zones and commonly occupies most of the interval between the ore horizon and the Tuff-Argillite unit north of the sulphide zones.

The Rhyolite Tuff unit consists of quartz and sericite + chlorite and carbonate schists. It has a relict fragmental texture and minor, large quartz phenocrysts, commonly altered to carbonate. Colors vary from white to green and it commonly has a pink to purple tone due to hematite.

Sericite Schist, 300 m

A rhyolitic lapilli tuff metamorphosed to quartz + sericite + chlorite + carbonate schist. The unit consists of lustrous, white to medium green schists with a relict fragmental texture and rare, fine quartz phenocrysts.

A quartz-chlorite schist and a rhyolite breccia horizon have been observed near the middle of the sericite schist unit.

Dolomite lenses are common within the upper 30 m of the sericite schist unit and at the top of the massive sulphide horizon.

Massive Sulphide Horizon, 29 m

A main massive sulphide lens and thin, discontinuous, hanging wall lenses occur near or at the top of the sericite schist unit. Mineral-

ization consists of massive and disseminated pyrite with disseminated sphalerite, chalcopyrite, bornite and chalcocite.

Distal to the sulphide zones the ore horizon consists of minor, disseminated, sphalerite and chalcopyrite with pyrite in schist or carbonate.

Disseminated pyrite with a very minor base metal content occurs in the sericite schists below the massive sulphide body.

The cross section shows the interpreted stratigraphy in DDH 98 (102). The hole was drilled due south at -70° . It was apparently not collared in the QFCT unit as intended but rather in the conformably overlying Tuff-Argillite unit. The section from 20.0 to 23.6 m contained 15-20% pyrite varying from disseminations to massive bands. This pyritic section is apparently a minor pyritic band within the Tuff-Argillite unit and not the pyritic zone in the QFCT intersected in DDH 18, 20, WKC-1, 93B3 and KT-59.

Minor lenses of argillite and tuff-argillite occur from 51.9 to 112.9 m. It appears that the section from 3.6 to 134.4 or 164.7 m correlates with the Tuff-Argillite unit but is predominantly pyroclastic rather than epiclastic and contains no basic flows or tuffs.

The section from 164.7 m to the bottom of the hole at 346.6 m is mainly QFCT (although no feldspar phenocrysts are visible) with minor tuff and LCT. The section appears to be very similar to the QFCT overlying the ore zones. It has a degree of Na_2O depletion and K_2O enrichment which is slightly stronger than that normally encountered directly over ore zones to within 200 to 300 m of ore zones. Also, the alteration index ($\text{MgO} + \text{K}_2\text{O}/\text{MgO} + \text{K}_2\text{O} + \text{CaO} + \text{Na}_2\text{O}$) for the section

is similar to the average for rocks above to 270 m beyond the ore zones.

The detailed drill log and 17 element ICP analyses for the complete hole are in the back of the report. No sections of the hole have been assayed.

CLAIMS

Esso's Kutcho property consists of 224 full size claims and units and 10 fractional claims. The following is a list of Kutcho property claims with record number, number of units if greater than one, month and day of recording and expiry dates.

Kutcho - 2122	Andrea	444	14	July 27	1991/07/27
Kutcho - 2122	CGL 001	560	12	June 26	1991/06/26
Kutcho - 2122	CGL 002	561	08	June 26	1989/06/26
Kutcho - 2122	CGL No 1 Fr.	1088		Oct 22/79	1989/10/22
Kutcho - 2122	Jeff 001	70301		Aug 27	1989/08/27
Kutcho - 2122	Jeff 002	70302		Aug 27	1991/08/27
Kutcho - 2122	Jeff 003	70303		Aug 27	1989/08/27
Kutcho - 2122	Jeff 004	70304		Aug 27	1991/08/27
Kutcho - 2122	Jeff 005	70305		Aug 27	1991/08/27
Kutcho - 2122	Jeff 006	70306		Aug 27	1991/08/27
Kutcho - 2122	Jeff 007	70307		Aug 27	1991/08/27
Kutcho - 2122	Jeff 009	70308		Aug 27	1991/08/27
Kutcho - 2122	Jeff 013	70309		Aug 27	1989/08/27
Kutcho - 2122	Jeff 014	70310		Aug 27	1989/08/27
Kutcho - 2122	Jeff 015	70311		Aug 27	1989/08/27
Kutcho - 2122	Jeff 016	70312		Aug 27	1989/08/27
Kutcho - 2122	Jeff 017	70313		Aug 27	1991/08/27
Kutcho - 2122	Jeff 018	70314		Aug 27	1991/08/27
Kutcho - 2122	Jeff 019	70315		Aug 27	1991/08/27
Kutcho - 2122	Jeff 020	70316		Aug 27	1991/08/27
Kutcho - 2122	Jeff 021	70317		Aug 27	1991/08/27
Kutcho - 2122	Jeff 022	70318		Aug 27	1991/08/27
Kutcho - 2122	Jeff 024	70319		Aug 27	1991/08/27
Kutcho - 2122	Jeff 025	70320		Aug 27	1989/08/27
Kutcho - 2122	Jeff 026	70321		Aug 27	1989/08/27
Kutcho - 2122	Jeff 027	70322		Aug 27	1989/08/27
Kutcho - 2122	Jeff 028	70323		Aug 27	1989/08/27
Kutcho - 2122	Jeff 029	70324		Aug 27	1989/08/27
Kutcho - 2122	Jeff 030	70325		Aug 27	1989/08/27
Kutcho - 2122	Jeff 031	70326		Aug 27	1991/08/27
Kutcho - 2122	Jeff 032	70327		Aug 27	1991/08/27
Kutcho - 2122	Jeff 033	70328		Aug 27	1991/08/27
Kutcho - 2122	Jeff 034	70329		Aug 27	1991/08/27
Kutcho - 2122	Jeff 035	70330		Aug 27	1991/08/27
Kutcho - 2122	Jeff 036	70331		Aug 27	1991/08/27
Kutcho - 2122	Jeff 037	70332		Aug 27	1991/08/27
Kutcho - 2122	Jeff 038	70333		Aug 27	1991/08/27
Kutcho - 2122	Jeff 039	70334		Aug 27	1991/08/27
Kutcho - 2122	Jeff 040	70335		Aug 27	1991/08/27
Kutcho - 2122	Jeff 041	70336		Aug 27	1989/08/27
Kutcho - 2122	Jeff 042	70337		Aug 27	1989/08/27
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Kutcho - 2122	Jeff 061	70356		Aug 27	1989/08/27

Kutcho - 2122	Jeff 062	70357	Aug 27	1989/08/27
Kutcho - 2122	Jeff 063	70358	Aug 27	1989/08/27
Kutcho - 2122	Jeff 064	70359	Aug 27	1989/08/27
Kutcho - 2122	Jeff 064 Fr.	1975	Aug 4/81	1983/08/04
Kutcho - 2122	Jeff 065	70360	Aug 27	1989/08/27
Kutcho - 2122	Jeff 066	70361	Aug 27	1989/08/27
Kutcho - 2122	Jeff 067	70362	Aug 27	1989/08/27
Kutcho - 2122	Jeff 068	70363	Aug 27	1989/08/27
Kutcho - 2122	Jeff 069	70364	Aug 27	1989/08/27
Kutcho - 2122	Jeff 070	70365	Aug 27	1989/08/27
Kutcho - 2122	Jeff 071	70366	Aug 27	1989/08/27
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Kutcho - 2122	Jeff 073	70368	Aug 27	1989/08/27
Kutcho - 2122	Jeff 074	70369	Aug 27	1989/08/27
Kutcho - 2122	Jeff 075	70370	Aug 27	1989/08/27
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Kutcho - 2122	Jeff 079	70374	Aug 27	1991/08/27
Kutcho - 2122	Jeff 080	70375	Aug 27	1991/08/27
Kutcho - 2122	Jeff 081	70376	Aug 27	1991/08/27
Kutcho - 2122	Jeff 082	70377	Aug 27	1991/08/27
Kutcho - 2122	Jeff 083	70378	Aug 27	1991/08/27
Kutcho - 2122	Jeff 084	70379	Aug 27	1991/08/27
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Kutcho - 2122	Jeff 116	70859	Nov 13	1991/11/13
Kutcho - 2122	Jeff 117	70860	Nov 13	1991/11/13

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Kutcho - 2122	Jeff 119	70862	Nov 13	1991/11/13
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Kutcho - 2122	Jeff 123	70866	Nov 13	1991/11/13
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Kutcho - 2122	Jeff 125	70868	Nov 13	1991/11/13
Kutcho - 2122	Jeff 126	70869	Nov 13	1991/11/13
Kutcho - 2122	Jeff 127	70870	Nov 13	1991/11/13
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Kutcho - 2122	Jeff 130	70873	Nov 13	1991/11/13
Kutcho - 2122	Jeff 131	70874	Nov 13	1991/11/13
Kutcho - 2122	Jeff 132	70875	Nov 13	1991/11/13
Kutcho - 2122	Jeff 133	70876	Nov 13	1991/11/13
Kutcho - 2122	Jeff 134	70877	Nov 13	1991/11/13
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Kutcho - 2122	Jeff 136	71971	Aug 20	1991/08/20
Kutcho - 2122	Jeff 137	71972	Aug 20	1991/08/20
Kutcho - 2122	Jeff 138	71973	Aug 20	1991/08/20
Kutcho - 2122	Jenn 001	70508	Sept 7	1988/09/07
Kutcho - 2122	Jenn 002	70509	Sept 7	1988/09/07
Kutcho - 2122	Jenn 003	71048	Nov 13	1988/11/13
Kutcho - 2122	Jenn 004	71049	Nov 13	1988/11/13
Kutcho - 2122	Jenn 005	71050	Nov 13	1988/11/13
Kutcho - 2122	Jenn 006	71051	Nov 13	1987/11/13
Kutcho - 2122	Jenn 007	71052	Nov 13	1987/11/13
Kutcho - 2122	Jenn 008	71053	Nov 13	1987/11/13
Kutcho - 2122	Jenn 009	71054	Nov 13	1987/11/13
Kutcho - 2122	Kris 001	70468	Sept 7	1991/09/07
Kutcho - 2122	Kris 002	70469	Sept 7	1991/09/07
Kutcho - 2122	Kris 003	70470	Sept 7	1991/09/07
Kutcho - 2122	Kris 004	70471	Sept 7	1991/09/07
Kutcho - 2122	Kris 005	70472	Sept 7	1991/09/07
Kutcho - 2122	Kris 006	70473	Sept 7	1991/09/07
Kutcho - 2122	Kris 007	70474	Sept 7	1991/09/07
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Kutcho - 2122	Kris 009	70476	Sept 7	1991/09/07
Kutcho - 2122	Kris 011	70478	Sept 7	1991/09/07
Kutcho - 2122	Kris 012	70479	Sept 7	1989/09/07
Kutcho - 2122	Kris 013	70480	Sept 7	1991/09/07
Kutcho - 2122	Kris 014	70481	Sept 7	1989/09/07
Kutcho - 2122	Kris 015	70482	Sept 7	1991/09/07
Kutcho - 2122	Kris 016	70483	Sept 7	1991/09/07
Kutcho - 2122	Lin 001 Fr.	929	Aug 20	1989/08/20
Kutcho - 2122	Lin 039	70912	Nov 13	1989/11/13
Kutcho - 2122	Lin 040	70913	Nov 13	1989/11/13
Kutcho - 2122	Lin 011	70884	Nov 13	1989/11/13
Kutcho - 2122	Moe 001	00007	06 May 12	1991/05/12
Kutcho - 2122	Py 66	1909	12 May 15/81	1985/05/15
Kutcho - 2122	Rex 001 Fr.	72033	Aug 27	1991/08/27
Kutcho - 2122	Rex 002 Fr.	72034	Aug 27	1991/08/27
Kutcho - 2122	Rex 003 Fr.	72035	Aug 27	1991/08/27
Kutcho - 2122	Rex 004 Fr.	72036	Aug 27	1991/08/27
Kutcho - 2122	Stu	443	06 July 27	1989/07/27
Kutcho - 2122	Svea	445	06 July 27	1991/07/27

1982 Kutcho Cost Statement
September 7 to 19, 1982

D. Bridge, Senior Geologist
5 days at \$170.00.....850.00

T. Terriff, Project Geologist
8 days at \$120.00.....960.00

Mobilization of drill crew, moving drill
to site, drilling, demobilization of
drill and equipment from property,
drilling and labour charges as on
attached invoice from Arctic
Diamond Drilling.....35,675.59

Helicopter charges for Northern
Mountain 206B and Trans Canada
500D for drilling related
helicopter services as on attached
Esso Minerals annual exploration
project expense statement.....21,281.02

Camp and fuel charges as on
statement from Sumac Mines
Ltd. less helicopter charges.....2,335.77

Total.....61,102.38

Note: No expenses are being claimed for transport
of personnel from Vancouver and Calgary, ICP
analyses, core boxes and freight.

OCT 10 1982

ARCTIC DIAMOND DRILLING LTD.

184 Industrial Road, Whitehorse, Yukon Y1A 2V1 (403) 667-6434

INVOICE #2262
October 12, 1982

Esso Minerals Canada
314 - 1281 West Georgia Street
Vancouver, B.C.
V6E 3J7

Drilling charges for the period September 07-19, 1982 on
Kutcho Creek Project.

Mobilization

Crew: -			
✓ 6 Man hours @ 27.25 per hour	163.50	✓	
Air Fare	817.40	✓	
Plus 10 %	81.74	✓	
Arctic's 5 Ton Truck with fuel & Gear-Whitehorse-Watson Lake- Deas Lake			
528 Miles @ \$1.00	528.00	✓	
27 Man hours @ 27.25 per hr.	735.75	✓	2326.39
Moving In & Setting Up			
Fuel & Gear			
21 Man hours @ 27.25 per hr.			572.25
Setting Up			
118 Man hours @ 27.25 per hour			3215.50
			6114.14

Hole # 98-70'xBQ

Overburden			
0-10=10 Feet @ 18.50 per foot	185.00	✓	
Core Drilling			
10-1137=1127 Feet @ 18.50 per foot	20849.50	✓	
Standby- Waiting for chopper			
17 Man hours @ 27.25 per hour	463.25	✓	21497.75

Demobilization:

Packing Up & Moving Out			
136 Man hours @ 27.25 per hour	3706.00	✓	
Arctic's 5 Ton Truck			
22 Man hours @ 27.25 per hour	599.50	✓	
Cost of Truck	2334.00	✓	
Plus 10 %	233.40	✓	
Cost of Air Fare	488.00	✓	
Plus 10%	48.80	✓	
Crew Travelling Time			
24 Man hours @ 27.25 per hour	654.00	✓	8063.70

APPROVED FOR PAYMENT
BY: [Signature]

PAY → 35675.59 ✓

CHARGE 02-0906-3221-17422

NB SUPPORT DOCUMENTS RETAINED IN VANCOUVER.

JAN 12, 1983

(REPORT 03)
 ESSO MINERIALS CANADA
 EXPLORATION PROSPECT EXPENSES
 PROSPECT DETAIL

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REPORT MONTH : DECEMBER , 83

21 BRITISH COLUMBIA
 42 MASSIVE SULPHIDES
 2122 KUTCHO

ACTIVITY CODE	ACTIVITY DESCRIPTION	PRIME	CURRENT EXPENDITURES	YEAR TO DATE EXPENDITURES	FORECAST	CHG. FROM FORECAST
GENERAL EXPENSES						
204	OVERHEAD & MANAGEMENT FEES	2401	.00	45.00		.00
ACTIVITY TOTAL	OVERHEAD & MANAGEMENT FEES		.00	45.00		
COSTTYPE TOTAL			.00	45.00		
MISCELLANEOUS						
901	GEOPHYSICS	8601	.00	180.00		.00
ACTIVITY TOTAL	GEOPHYSICS		.00	180.00		
903	GEOLOGY	3099	270.00	378.00		.00
903		3107	142.54	564.69		.00
903		3142	47.50	1,857.50		.00
903		5410	77.40	77.40		.00
903		8601	161.50	214.76		.00
903		9898	2,977.50	8,422.50		.00
ACTIVITY TOTAL	GEOLOGY		3,676.44	11,534.85		
906	DRILLING & ASSAYING	2330	.00	344.36		.00
906		2401	.00	10.46		.00
906		3107	.00	1,027.00		.00
906		3108	.00	6,494.92		.00
906		3111	.00	21,281.02		.00
906		3137	.00	350.00		.00
906		3201	.00	568.50		.00
906		3221	.00	35,675.59		.00
906		5073	.00	550.75		.00
906		5103	.00	379.24		.00
906		5180	.00	2,676.13		.00
906		8601	.00	1,325.32		.00
906		9898	.00	4,970.00		.00
ACTIVITY TOTAL	DRILLING & ASSAYING		.00	75,653.29		
909	LAND RETENTION COSTS	1605	.00	-3,185.00		.00
ACTIVITY TOTAL	LAND RETENTION COSTS		.00	-3,185.00		
COSTTYPE TOTAL			3,676.44	84,183.14		

NOV - 1 1982 RECD

SUMAC MINES LTD.

BOX 10150, PACIFIC CENTRE
1650 - 701 WEST GEORGIA STREET
VANCOUVER, B.C. V7Y 1C6

E

TELEPHONE
B.C.
685-6735

October 29th, 1982

Esso Mineral Canada,
1281 West Georgia Street,
Vancouver, B.C.
V6E 3J7

Attention: Mr. D. Bridge

Dear Mr. Bridge:

The following is the statement of Esso's share paid for by Sumac during 1982 Kutcho in the sum of \$3,743.75.

- 1) Demobilization of BQ rods from Esso drill site to the Kutcho airstrip ✓
 - Labour - (2 hrs. + 4 hrs.) x 2 men x 27.25 = \$ 327.00 ✓
 - Helicopter - 3.8 hrs. x 370.52 = \$1,407.98 ✓
- 2) Diesel Fuel: 4 drums x 94.81 = \$ 379.24 ✓
- 3) JP-4: 7 drums x 132.79 = \$ 929.53 ✓
- 4) Food: 35 men days x 20.00 = \$ 700.00 ✓

<p><i>N.B.</i> Make cheque payable to: Sumitomo Metal Mining Canada Ltd.</p>	Total	<p>\$3,743.75 ✓</p>
--	-------	---------------------

No charge for mobilization of Diesel Fuel and JP-4 from Dease Lake to Kutcho Airstrip.

Yours truly,

T. Ueno

T. Ueno.

TU/sb

APPROVED FOR PAYMENT

BY *[Signature]*

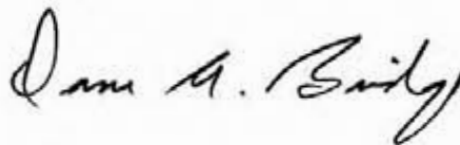
CHARGE 02-0906-3111-111A22 = 1407.98
 02-0906-5103-111A22 = 379.24
 02-0906-5180-111A22 = 929.53
 02-0906-3107-111A22 = 1027.00
 PAY → 3,743.75

STATEMENT OF QUALIFICATIONS

I, Dane A. Bridge, of West Vancouver, British Columbia, hereby certify the following qualifications:

I obtained a B.Sc. Hons., in 1969 and a M.Sc., in 1972 in geology from the University of Manitoba, Winnipeg, Manitoba.

I have been practising my profession as a geologist in Canada for 14 years.

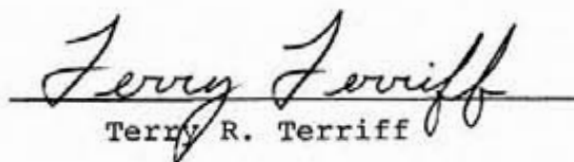


Dane A. Bridge

I, Terry R. Terriff of Vancouver, British Columbia hereby certify the following qualification:


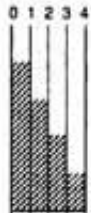
I obtained a B.Sc. in 1975 in geology at the University of Calgary, Calgary, Alberta.

I have been practising my profession as a geologist in Canada for 8 years.



Terry R. Terriff

DRILL LOG

PROJECT <i>KUTCHO</i>	GROUND ELEV. <i>1481 m</i>
HOLE NO. <i>DDH 98</i>	BEARING <i>180°</i>
LOCATION <i>Twenty Creek area 22,500 m N ; 35,302 m E</i>	DIP <i>-70</i>
	TOTAL LENGTH <i>1137 FEET, 346.55 METRES</i>
LOGGED BY <i>T. TERRIFF</i>	HORIZONTAL PROJECT
DATE <i>SEPTEMBER 17 1982</i>	VERTICAL PROJECT
CONTRACTOR <i>ARCTIC DIAMOND DRILLING</i>	ALTERATION SCALE 
CORE SIZE <i>BQ</i>	TOTAL SULPHIDE SCALE 
DATE STARTED <i>SEPTEMBER 12, 1982</i>	
DATE COMPLETED <i>SEPTEMBER 16, 1982</i>	
DIP TESTS <i>No dip tests were taken as none of necessary equipment was present on the job.</i>	
COMMENTS <i>No foliation measurements taken from 537' to 832'</i> <i>STICK UP - 11", 0.28m</i> <i>The casing was left in the hole</i>	LEGEND

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES			SAMPLE NUMBER	ASSAYS			
		FROM	TO	WIDTH					
		65.6	77.3	11.6	K-82-12a				
		(20.00 - 23.56)							
		77.3	109.8	32.5	K-82-13				
		(23.56 - 33.17)							

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES			SAMPLE NUMBER	ASSAYS		
		FROM	TO	WIDTH				
		109.8	128.8	19.0	K-82-14			
		(33.47 - 39.26)						
		128.8	137.0	8.2	K-82-15			
		(39.26 - 41.76)						
		137.0	157.0	20.0	K-82-16			
		(41.76 - 47.85)						

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES			SAMPLE NUMBER	ASSAYS			
		FROM	TO	WIDTH					
		157.0 (47.85-53.95)	177.0	20.0	K-82-17				
		177.0 (53.95-60.05)	197.0	20.0	K-82-18				
		197.0 (60.05-66.14)	217.0	20.0	K-82-19				
		217.0 (66.14-75.29)	247.0	30.0	K-82-20				
		247.0 (75.29-81.03)	275.7	28.7	K-82-21				
		275.7 (81.03-89.92)	295.0	19.3	K-82-22				
		295.0 (89.92-96.01)	315.0	20.0	K-82-23				
		315.0 (96.01-102.11)	335.0	20.0	K-82-24				
		335.0 (102.11-108.20)	355.0	20.0	K-82-25				
		355.0 (108.20-114.91)	377.0	22.0	K-82-26				
		377.0 (114.91-121.01)	397.0	20.0	K-82-27				
		397.0 (121.01-127.10)	417.0	20.0	K-82-28				
		417.0 (127.10-131.06)	430.0	13.0	K-82-29				
		430.0 (131.06-134.45)	441.1	11.1	K-82-30				

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION					FRACTURE INTENSITY	% VEIN QTZ
					A	B	C	D	E		
				FEET							
144.8			75	- dark green in colour, v. fgn. chloritic, mildly sericitic grd. mass. w/ 5-10% 1-4 mm qtz xstls and 10-15% blebs of calcite							
				- trace v. fgn. py 464.5-464.9. Qtz vein @ 70° to C.A.							
				475.1-540.5 LAPILLI CRISTAL TUFF							
			75	- light grey green, v. fgn. moderately sericitic grd. mass w/ 10-15% 1-4 mm diam qtz xstls							
			75	- grd. mass is mildly chl. to 477.8							
			75	- minor v. fgn. calcite in grd. mass							
			75	~ 20% chloritic and act 10 parts							
			75	~ 1-2% v. fgn. py as blebs							
			73	- calcite - chl. content of grd. mass increase near lower contact							
164.7				540.5-551.0 QUARTZ CRISTAL TUFF							
				- dark green in colour, v. fgn. chloritic, moderately sericitic grd. mass. w/ ~ 5% 1-4 mm qtz xstls ~ 5-10% 1-4 mm irregularly shaped calcite.							
				- trace v. fgn. py							
167.9				551.0-559.0 QUARTZ CRISTAL TUFF							
				- light grey in colour, v. fgn. sericitic grd. mass w/ ~ 10% 1-6 mm qtz xstls							
				~ 1% calcite in grd. mass							
				- occ. minor patches of chloritic grd. mass.							
				~ 2% v. fgn. py as blebs or up to 2 mm blebs							

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION					FRACTURE INTENSITY	% VEIN QTZ.
					A	B	C	D	E		
				FEET							
170.4				555.2-556 qtz vein w/ calcite patches @ 37° to C.A.							
				559.0- QUARTZ CRYSTAL TUFF 559.9							
				- beige coloured, v.f.g. very sericitic grd. mass w/ 3-5% 1-3mm qtz xtals. - four bands ± 3mm wide of siliceous grd. mass w/ blebs of v.f.g. py.							
170.7				559.9- CHLORITIC TUFF 561.2							
				- light green in colour, v.f.g. w/ buff grd. mass. - 1% flag of act ~ 4% py occurring as bands of blebs. - lower contact @ 47° to C.A.							
171.1				561.2- QUARTZ CRYSTAL TUFF 569.4							
				- medium to dark grey coloured v.f.g. sericitic grd. mass w/ 10-15% 1-11mm qtz xtals. ~ 2% frags of light green act. ~ 5% v.f.g. py dissem in grd. mass. 564.1-5645 bronze.							
173.6				569.4 QUARTZ CRYSTAL TUFF -576.3							
				- light grey coloured, v.f.g. benitic grd. mass w/ 10% 1-10mm qtz xtals. ~ 5% chlorite or qtz xtals chloritic lapilli							
175.7				A 576.3- TUFF 578.6							
				- v.f.g. fine tuff w/ 15-20% v.f.g. calcite							

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES			SAMPLE NUMBER	ASSAYS			
		FROM	TO	WIDTH					

561.2 578.6 17.4 K-82-37
 (171.05 - 176.36)

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION					FRACTURE INTENSITY	% VEIN QTZ
					A	B	C	D	E		
				FEET							
176.4				occurring as patches and blebs \approx 4 mm diam. ~ 3% dissem v.f.gr. py - trace qtz xstls.							
				578.6 QUARTZ CRYSTAL TUFF - 601.9 - light grey coloured, v.f.gr. sericitic grd. mass w/ ~ 10% 1-10 mm qtz xstls ~ 10% lapilli of rhyolitic or act composition. ~ 3-5% py as v.f.gr. dissem or blebs \approx 2 mm diam.							
183.5				601.9 LAPILLI CRYSTAL TUFF - 605.0 - light grey coloured, v.f.gr. sericitic grd. mass w/ ~ 5% 1-5 mm qtz xstls. ~ 30% - 40% rhyolitic lapilli. ~ 3% py irregularly distributed as blebs or dissem.							
174.4				605.0 - QUARTZ CRYSTAL TUFF 605.9 - beige coloured, v.f.gr. sericitic grd. mass w/ 5-8% \leq 1 to 3 mm qtz xstls. - contains 3-5% elongate patches of cream-grey qtz ~ 5% v.f.-f.gr. py dissem. in grd. mass. lobes contact @ 47° to CA. - 3 mm bright green sericitic band adjacent to contact.							
184.7				605.9 - QUARTZ CRYSTAL TUFF 626.2 - medium grey coloured w/ light green patches, v.f.gr. sericitic ground mass w/ 10% 1-11 mm qtz xstls							

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION					FRACTURE INTENSITY	% VEIN QTZ
					A	B	C	D	E		
				FEET							
				~ 10% lapilli of pale green to beige QCT or beige rhyolite composition; lapilli decrease towards lower contact.							
				~ 10 ft adjacent to lower contact, grd mass is more sericitic. - lower contact @ 46° to C.A.							
				621.5-621.6 Calcite QCT sheared and is very calcite rich.							
190.9	46			626.2- QUARTZ CRYSTAL TUFF 637.0 - medium to dark grey coloured, v.f. gr. sericitic grd. mass w/ 10-15% 1-11 mm diam qtz xtals ~ 5% calcite in grd. mass. ~ 5-7% v.f. gr. py as elongate blebs or dissem. - occ. rhyolitic lapilli.							
194.2				637.0 QUARTZ CRYSTAL TUFF -646.4 - light grey to pale green v.f. gr. sericitic grd. mass w/ 10-15% 1-11 mm qtz xtals. ~ 5% calcite in grd. mass ~ 2-3% v.f. gr. dissem py - 2-3% rhyolitic lapilli 644.1 - thin 2mm bands of pt 644.4 - trace @ 21° to C.A. - lower contact @ 43° to C.A.							
196.4											
197.0	43			646.4- CHLORITIC TUFF 648.0 - light to medium green coloured, v.f. gr. grd. mass ~ 5% calcite in grd. mass							

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES			SAMPLE NUMBER	ASSAYS			
		FROM	TO	WIDTH					
		626.2	646.4	20.2	K-82-40				
		(190.87 - 197.02)							
		646.4	660.4	14.0	K-82-41				
		(197.02 - 201.29)							

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION					FRACTURE INTENSITY	% VEIN QTZ
					A	B	C	D	E		
				FEET							
197.5				~3-5% v.f. gr. py as dissem. 648.0 - GOUGE ZONE 652.6 - pink tinted qtz lens calcite lens 60mm wide in a zone of gouge and broken QCT - lower gouge contact @ 10° to C.A.							
198.9				652.6 - QUARTZ CRYSTAL TUFF 658.8 - light grey to pale grey- green in colour, v.f. to f. gr. sericitic grd. mass w/ 10% < 1-2mm diam qtz xtals ~3-5% v.f. gr. py as elongate blebs or as disseminations.							
200.8				658.8 - QUARTZ CRYSTAL TUFF 660.4 - light to medium green coloured, v.f. gr. sericitic grd. mass. w/ 5-8% 1-2mm qtz xtals ~10% 2mm blebs calcite ~3% v.f. gr. dissem. py.							
201.3				660.4 - GOUGE ZONE 673.0 - upper contact @ 40° to C.A. - gouge in part reheated. 663.0 - 667.7 - predominantly competent QCT mixed w/ sheared QCT							
205.1				673.0 - QUARTZ CRYSTAL TUFF 694.7 - light grey coloured, v.f. gr. sericitic grd. mass. w/ ~5% 1-5mm qtz xtals ~3-5% leucite of rhyolite							

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES			SAMPLE NUMBER	ASSAYS			
		FROM	TO	WIDTH					
		6730	694.7	21.7	K82-42				
		(201.29 - 211.74)							

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION					FRACTURE INTENSITY	% VEIN QTZ
					A	B	C	D	E		
				FEET							
211.7			A	to pelagic composition ~ 5-10% of section composed of v.f. to f.gr. light grey coloured tuff ~ 3% v.f. py as dissem.							
				694.7- QUARTZ CRYSTAL TUFF 739.1 - light to medium green v.f.gr. sericitic grd. mass. w/ 5-10% 1-10 mm qtz x tabs ~ 5-10% calcite in grd. mass or as erratically distributed blebs - several minor bands of medium grey, v.f.gr. tuff ~ 2-3% v.f.gr. py as dissem or as 1mm blebs ~ 10% lighter grey, more sericitic grd. mass. 727.1 - 3mm lens of py 728.1 2mm band of py 728.9 2mm band of py							
225.3				739.1 LAPILLI CRYSTAL TUFF - 757.2 - light grey, coloured, v.f.gr. sericitic grd. mass w/ ~ 5% 1-2 mm qtz x tabs ~ 5% calcite in ^{as blebs} grd. mass ~ 20% chrysolite lapilli ~ 3-4% dissem v.f.gr. py 741.5-742.0 Goube @ 31° to C.A. ~ 10% of section is chloritic OCT; medium green in colour as above							
230.8				757.2- QUARTZ CRYSTAL TUFF 805.2 - medium green to pale green grey to light grey, v.f.gr. sericitic grd. mass w/ 5-10% 1-3mm qtz x tabs							

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION					FRACTURE INTENSITY	% VEIN QTZ.
					A	B	C	D	E		
			∅	FEET							
				~ 20% of 15 a v.f. gn. medium green 1/2" w/ up to 5% 1-3mm qtz xstls and up to 10% blebs of calcite or calcite qtz							
				~ 3-4% py as v.f. gn. dissem 996.3-996.9. Pyroclitic lapilli in a v.f. gn. sericite grt. mass; contains 45% v.f. gn. dissem py. upper contact 42° to C.A. and lower contact 38° to C.A.							
245.4			SS	805.2-845.8 QUARTZ CRYSTAL TUFF							
				- light grey v.f. gn. sericite grt. mass w/ 10% 1-9 mm qtz xstls ~ 5-10% beige coloured irregular wisps and bands up to 2mm wide (carb?) ~ contains 5% chloritic lapilli - contains 2-3% v.f. gn. py as dissem & blebs							
250.9				823.3-824.2 Gouge w/ 90mm qtz veins.							
252.0				827.0-827.7 Gouge.							
255.1			∅	~ 837.0 lapilli content increases to up to 20% and qtz xstls decr to < 5%							
257.8			∅	845.8-854.0 QUARTZ CRYSTAL TUFF							
				- light to medium grey coloured, v.f. gn. sericite grt. mass w/ 10-15% 1-6mm diam qtz xstls ~ 5% chloritic lapilli ~ 1-2% v.f. gn. py occurring as < 1mm diam blebs							
258.7				848.7-848.9 Qtz vein @ 70°							

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES			SAMPLE NUMBER	ASSAYS		
		FROM	TO	WIDTH				
		854.0	872.8	18.8	K-82-51			
		(260.30 - 266.03)						
		872.8	891.5	18.7	K-82-52			
		(266.03 - 271.73)						

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION					FRACTURE INTENSITY	% VEIN QTZ
					A	B	C	D	E		
				FEET							
271.7				<p>grd mass w/ 70% 1-4mm qtz xstals ~ 3% beige coloured irregular bands & con bands ~ 1-2% v.f. gr. py as dissem. - grd. mass becomes slightly chloritic towards upper contact - 1 frag of olivine hornbl.</p>							
273.2			50	<p>891.5 - QUARTZ CRYSTAL TUFF 906.5 - light to medium green to grey green coloured, v.f. gr sericitic grd. mass w/ ~ 5-10% 4-8mm qtz xstals ~ 5-6% v.f. gr. py as dissem. or blebs.</p>							
275.7			45	<p>896.3 - 897.7 - med to dk green coloured, v.f. - 1% chl. m. l. l. sericitic grd. mass w/ 3-5% hornbl. and ~ 5% carb blebs. (may be hornbl.) - lower contact is @ 45° to C.A.</p>							
276.3			44	<p>904.5 - 906.5 - green tuff as described above @ 896.3.</p>							
284.5			50	<p>906.5 - QUARTZ CRYSTAL TUFF 933.4 - light grey to pale green - grey, sericitic - silice grd mass w/ 10% 1-6mm qtz xstals ~ 5% chlorite or Fe silic. lapilli. ~ 2-3% v.f. gr. py as dissem. or blebs - to about 908.3 the grd mass is mildly chloritic</p>							
				<p>933.4 - 1700 hrs 935.5 - at 50° to C.A.</p>							

MINERALIZATION DESCRIPTION	TOTAL SULPHIDE	SAMPLES			SAMPLE NUMBER	ASSAYS			
		FROM	TO	WIDTH					
		<i>891.5</i>	<i>906.5</i>	<i>15.0</i>	<i>K-82-53</i>				
		<i>(271.73 - 276.30)</i>							
		<i>906.5</i>	<i>933.4</i>	<i>26.9</i>	<i>K-82-54</i>				
		<i>(276.30 - 289.50)</i>							

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION					FRACTURE INTENSITY	% VEIN QTZ
					A	B	C	D	E		
302.3				991.7 QUARTZ CRYSTAL TUFF 1015.2 - light grey to pale green grey, v.f. gr., sericitic, w. part siliceous gnd mass w/ 10% 1-9 mm qtz xtals ~ occasional moderately chloritic patches in gnd. mass. - 1% hematite occasionally distributed in gnd. mass - 2-4% v.f. gr. py as dissem.; occasional minor sections of up to 6% py - 3-5% Prago.							
309.4				1015.2 - QUARTZ CRYSTAL TUFF 1031.7 - light grey coloured v.f. gr. sericitic gnd. mass w/ 8-10% 1-4 mm qtz xtals - 2% v.f. gr. dissem. py - trace of f.g. biot. carbonate.							
314.6				1031.7 - QUARTZ CRYSTAL TUFF 1079.1 - light green grey to medium grey green, mildly sericitic, chloritic gnd. w/ 10-15% 1-9 mm qtz xtals ~ 10% of section consists of v.f. f. gr., medium green coloured, chloritic tuff w/ ~ 5% calcite blebs - minor v.f. f. gr. epidote occurring as irregular patches of dissem. - minor hematite dissem. in gnd. mass occurring in patches ~ 5% frags of chloritic or hematitic composition ~ 5% py as v.f. gr. dissem.							

DEPTH (m)	% CORE REC	LITHOLOGY	STRUCTURE	GEOLOGICAL DESCRIPTION	ALTERATION					FRACTURE INTENSITY	% VEIN QTZ.	
					A	B	C	D	E			
328.9				1079.1 QUARTZ CRYSTAL TUFF 1087.0 - light grey, v.f.gr., sericitic grd. mass w/ 10-15% 1-6 mm diam qtz xtals ~ 2% earthy beige bands of carb. in part siliceous, erratically distributed through section - 2 thumb sized frags of beige coloured, buff gr. f.gr. tuff; hematite. - minor chylitic frags. ~ 3% v.f.gr. dissem. py.								
331.3				1087.0 QUARTZ CRYSTAL TUFF - 1128.3 - medium green coloured, v.f.gr. mildly sericitic, chloritic grd. mass w/ 10-15% 1-9 mm qtz xtals ~ 5% erratically distributed v.f.gr. epidote - 1 place of v.f.gr. hematite ~ 3% calcite in grd. mass or occurring as < 1 mm blebs in erratic patches - 3-5% chylitic & chlorite frags. - 3-5% v.f.gr. py as dissemin and blebs								
343.9				1128.3- QUARTZ CRYSTAL TUFF - light beige to pale green. grey in colour v.f.gr., siliceous, mildly sericitic grd. mass w/ ~ 10-15% 1-9 mm qtz xtals ~ 5% v.f.gr. chl in grd. mass ~ 1% earthy yellow carbonate as v.f.gr. - to hematite ~ 1% v.f.gr. py as dissem.								
346.55				1137.0 END OF HOLE.								

MINEN LABS ICP REPORT

PAGE 1 OF 3

FILE NAME: 2-717/P1*
 ACT NAME: ESSO

DATE: OCTOBER 1, 1982
 COMPANY: ESSO MINERALS
 PROJECT: # 2122 *Kutch* *DDH 98*

---- CONCENTRATION IN PPM ----

	AS	CO	CU	MO	NI	V	ZN
K8210	0	63	122	39	55	294.0	293
K8211	0	64	94	36	59	296.0	173
K8212	9	8	54	11	11	23.9	700
K8212A	103	11	85	14	14	29.1	3620
K8213	16	13	74	15	13	24.6	160
K8214	0	11	22	11	12	28.6	154
K8215	2	10	44	24	15	17.9	206
K8216	11	11	73	23	18	24.6	391
K8217	75	13	72	20	19	28.9	263
K8218	72	13	52	20	22	32.5	235
K8219	141	15	83	18	19	25.5	195
K8220	0	20	76	29	54	87.1	332
K8221	0	13	57	18	14	28.9	200
K8222	0	15	103	19	26	49.8	216
K8223	0	11	43	18	17	39.1	168
K8224	0	12	39	17	23	42.3	215
K8225	0	17	41	15	19	41.8	140
K8226	0	17	52	20	31	50.4	218
K8227	0	22	67	29	29	51.8	181
K8228	0	24	104	20	33	56.1	241
K8229	0	8	27	13	10	24.6	182
K8230	0	11	57	9	10	19.5	395
K8231	0	9	48	14	13	20.4	120
K8232	0	46	349	27	53	163.0	149
K8233	0	18	41	31	24	32.7	160
K8234	0	22	60	28	33	47.5	410
K8235	0	11	55	16	22	34.8	208
K8236	0	31	16	26	47	89.8	131
K8237	0	12	44	17	16	30.7	527
K8238	0	8	47	17	9	19.3	209

MINEN LABS ICP REPORT

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FILE NAME: 2-717/P1*
 ACT NAME: ESSO

DATE: OCTOBER 1, 1982
 COMPANY: ESSO MINERALS
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----- CONCENTRATION IN PPM -----

	BA	CAO	MG0	NA20	P205	SI02	SR
K8210	117	53100	128000	47300	2320	457000	447
K8211	115	50500	138000	45500	1390	519000	405
K8212	278	7660	28500	50600	1050	762000	332
K8212A	740	4420	14200	17500	1160	781000	376
K8213	176	9610	17400	34900	1310	792000	470
K8214	416	54800	31700	43200	1520	858000	427
K8215	781	66700	31500	33800	932	834000	506
K8216	632	37300	31900	35800	1050	844000	424
K8217	678	61400	35200	44000	1710	770000	572
K8218	1300	53600	25800	38000	1600	874000	635
K8219	647	23500	23900	30800	2030	806000	538
K8220	679	35700	82500	39500	2970	755000	560
K8221	645	47300	38000	43800	2250	888000	584
K8222	538	67800	54300	43800	1840	839000	579
K8223	703	39700	46800	42500	1860	853000	647
K8224	818	32000	54300	48600	2910	881000	716
K8225	664	56000	40200	39200	3030	886000	740
K8226	767	61100	51600	42500	2440	870000	715
K8227	630	85200	48100	40000	4350	861000	699
K8228	638	57900	59200	33100	2630	850000	724
K8229	622	49500	26900	44700	3580	916000	687
K8230	639	45100	26300	34900	2690	916000	722
K8231	642	39700	37800	44500	3740	822000	706
K8232	183	209000	69200	39100	17000	599000	1020
K8233	525	38400	44700	35300	4840	914000	779
K8234	585	60300	54600	36900	4270	845000	821
K8235	591	78400	48800	32700	4110	978000	814
K8236	344	151000	84700	13500	3800	788000	878
K8237	592	92900	38400	23900	3710	910000	929
K8238	576	49600	37700	24600	3870	888000	853

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FILE NAME: 2-717/P1*
 ACT NAME: ESSO

DATE: OCTOBER 1, 1982
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----- CONCENTRATION IN PPM -----

	TIO2	K2O	RB
KB210	8710	5490	20
KB211	8730	6620	2
KB212	2870	12600	13
KB212A	2160	24500	28
KB213	3110	8510	3
KB214	3030	10800	10
KB215	2940	14700	11
KB216	3020	10700	17
KB217	3400	10100	28
KB218	3470	8570	24
KB219	2880	12100	22
KB220	6730	8810	8
KB221	3850	9730	22
KB222	4550	9520	6
KB223	3880	11900	16
KB224	4720	10100	32
KB225	3690	11700	18
KB226	4410	12600	10
KB227	4400	13500	27
KB228	4370	15400	30
KB229	3560	17900	23
KB230	3440	19700	42
KB231	3460	17000	39
KB232	8450	12700	26
KB233	4250	18300	33
KB234	4820	19300	32
KB235	3720	16800	19
KB236	4030	15400	23
KB237	5160	16200	31
KB238	4020	14200	8

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FILE NAME: 2-717/P2*
 ACT NAME: ESSO

DATE: OCTOBER 1, 1982
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----- CONCENTRATION IN PPM -----

	AS	CO	CU	MO	NI	V	ZN
K8239	4	10	708	10	13	20.7	195
K8240	0	12	44	12	17	21.7	124
K8241	0	14	39	15	28	43.6	202
K8242	0	12	225	16	14	20.2	264
K8243	0	16	51	12	27	38.4	117
K8244	0	11	42	10	12	19.9	89
K8245	0	11	38	11	23	30.6	119
K8246	0	11	29	15	15	33.7	101
K8247	0	26	89	13	43	50.0	135
K8248	8	16	92	16	24	32.6	1530
K8249	4	23	60	12	29	30.0	156
K8250	10	12	88	11	17	20.8	72
K8251	0	10	35	7	12	18.7	77
K8252	0	28	75	12	40	44.8	126
K8253	0	28	102	16	59	69.2	217
K8254	6	9	56	8	12	14.8	84
K8255	0	34	240	17	50	65.0	115
K8256	3	10	81	11	12	17.3	63
K8257	0	9	17	10	12	17.4	69
K8258	0	8	51	6	12	14.7	49
K8259	0	7	9	5	11	9.9	36
K8260	17	11	17	9	10	21.7	131
K8261	0	23	65	14	31	42.3	197
K8262-	17	25	180	10	37	51.4	122
K8263	0	31	73	14	60	71.0	188
K8264	0	32	27	14	38	84.2	292
K8265	0	5	7	3	7	18.1	124

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FILE NAME: 2-717/P2*
 ACT NAME: ESSO

DATE: OCTOBER 1, 1982
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----- CONCENTRATION IN PPM -----

	BA	CAD	MGO	NA2O	P2O5	SiO2	SR
KB239	54	42100	25300	16900	2150	632000	285
KB240	90	31700	43700	21300	2620	611000	283
KB241	55	18300	43700	26200	3290	642000	252
KB242	288	12800	27300	20600	3530	680000	253
KB243	98	46100	32600	18600	3390	632000	276
KB244	36	21300	28400	23500	1770	680000	223
KB245	25	27900	32700	25700	2750	638000	273
KB246	131	20400	32600	16600	3050	681000	255
KB247	31	34200	42100	28000	2490	557000	262
KB248	95	21900	35600	12500	2780	614000	250
KB249	98	28600	36000	18300	2630	568000	266
KB250	140	6590	23400	12100	2460	665000	245
KB251	35	21300	25200	33200	2630	690000	207
KB252	69	47300	54300	26100	3270	578000	241
KB253	5	25700	77100	31700	1120	570000	98
KB254	11	4010	17700	32000	1160	628000	112
KB255	130	13400	40500	18000	1280	587000	119
KB256	219	5180	16200	30100	1610	626000	134
KB257	258	5160	21100	20500	1160	657000	134
KB258	208	4160	19700	24500	1350	675000	148
KB259	175	1930	14800	27800	1510	654000	162
KB260	356	4280	21700	16400	1030	644000	157
KB261	228	20100	39900	20700	1830	605000	187
KB262	176	37700	33100	28600	1890	601000	274
KB263	825	25100	55800	22300	2480	625000	231
KB264	235	27900	56500	25800	2950	598000	231
KB265	122	25300	12300	37500	2820	690000	217

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FILE NAME: 2-717/P2*
 ACT NAME: ESSO

DATE: OCTOBER 1, 1982
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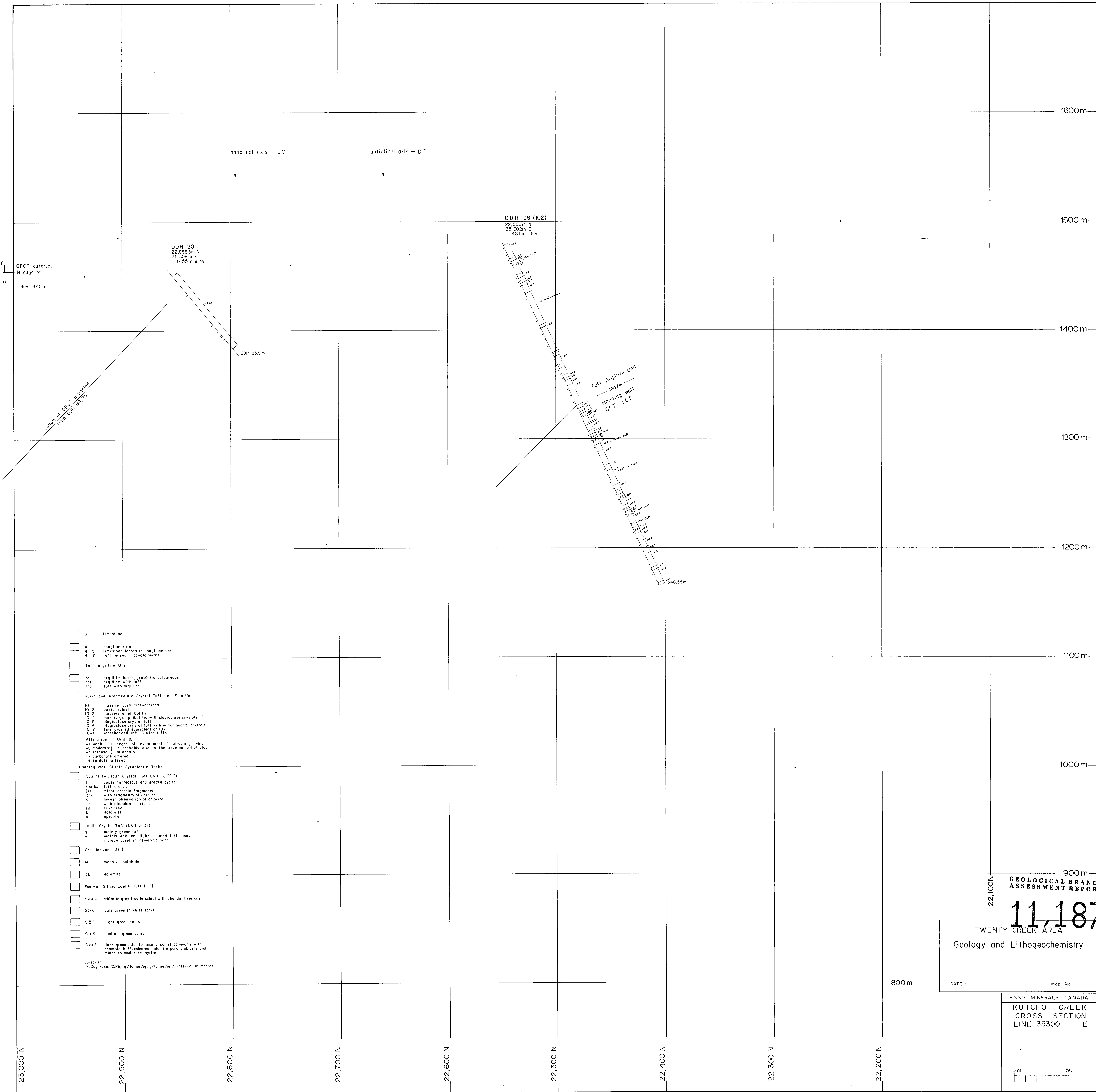
---- CONCENTRATION IN PPM ----

	TI02	K20	RB
K8239	2270	11900	6
K8240	3440	12800	14
K8241	3130	11700	21
K8242	2510	18900	22
K8243	2500	14400	20
K8244	3210	16800	20
K8245	3300	13500	18
K8246	3010	19800	26
K8247	4190	15200	28
K8248	2900	23100	21
K8249	4220	22600	38
K8250	2930	25800	29
K8251	3310	16600	19
K8252	5540	17700	23
K8253	5830	15200	31
K8254	2040	17000	22
K8255	5410	22000	36
K8256	2430	27800	31
K8257	2040	26400	29
K8258	2290	26200	33
K8259	1660	22900	32
K8260	2070	31000	19
K8261	4430	23400	36
K8262	7380	12800	23
K8263	5250	19100	52
K8264	6250	14700	42
K8265	2990	21900	41

DDH 98 (102) and Kutcho Geology

DDH 98 (102) was drilled in an area of hanging wall rocks relative to the Kutcho massive sulphide horizon. The hanging wall rocks show mesoscopic and chemical evidence of hydrothermal alteration similar to the alteration known to occur within 300 m of Kutcho massive sulphide bodies. The purpose of the hole was to penetrate the stratigraphic level of the known massive sulphide bodies. However, the hole was collared in a stratigraphically higher unit than had been interpreted from the surface geology. Consequently the hole bottomed in a complexly folded area still in hanging wall stratigraphy. DDH 98 (102) served to better define an area of untested, altered hanging wall rocks. Additional drilling is recommended in 1983 to attempt to penetrate the massive sulphide horizon.

The following section describes the geology of the Kutcho massive sulphide zones. A more detailed description of DDH 98 (102) follows this section and places DDH 98 (102) in the described stratigraphy.



22,100N

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

11,187

900m

TWENTY CREEK AREA
Geology and Litho geochemistry

DATE : _____ Map No. _____

ESSO MINERALS CANADA
KUTCHO CREEK
CROSS SECTION
LINE 35300 E



- 3 limestone
- 4 conglomerate
- 4-5 limestone lenses in conglomerate
- 4-7 tuff lenses in conglomerate
- Tuff-argillite Unit
- 7a argillite, black, graphitic, calcareous
- 7at argillite with tuff
- 7to tuff with argillite
- Basic and Intermediate Crystal Tuff and Flow Unit
- IO-1 massive, dark, fine-grained
- IO-2 basic schist
- IO-3 massive, amphibolitic
- IO-4 massive, amphibolitic with plagioclase crystals
- IO-5 plagioclase crystal tuff
- IO-6 plagioclase crystal tuff with minor quartz crystals
- IO-7 fine-grained equivalent of IO-6
- IO-1 interbedded unit IO with tuffs
- Alteration in Unit IO
 - 1 weak) degree of development of "bleaching" which
 - 2 moderate) is probably due to the development of clay
 - 3 intense) minerals
 - k carbonate altered
 - e epidote altered
- Hanging Wall Silicic Pyroclastic Rocks
- Quartz Feldspar Crystal Tuff Unit (QFCT)
 - t upper tuffaceous and graded cycles
 - e or b tuff-breccia
 - (t) minor breccia fragments
 - 3r tuff breccia with fragments of unit 3r
 - c lowest observation of chlorite
 - rs with abundant sericite
 - sil silicified
 - d dolomite
 - e epidote
- Lapilli Crystal Tuff (LCT or 3r)
 - g mainly green tuff
 - w mainly white and light coloured tuffs, may include purplish hematitic tuffs.
- Ore Horizon (OH)
- m massive sulphide
- 3k dolomite
- Footwall Silicic Lapilli Tuff (LT)
- S>>C white to grey fissile schist with abundant sericite
- S>C pale greenish white schist
- S^C light green schist
- C>S medium green schist
- C>>S dark green chlorite-quartz schist, commonly with rhombic buff-coloured dolomite porphyroblasts and minor to moderate pyrite

Assays:
%Cu, %Zn, %Pb, g/tonne Ag, g/tonne Au / interval in metres