

TOWNSHIP:

TECK · TOWNSHIP

REPORT NO: 83

010

WORK PERFORMED FOR: Battle Mountain Inc

RECORDED HOLDER: SAME AS ABOVE [X]

; OTHER []

CLAIM NO.	HOLE NO.	FOOTAGE	DATE	NOTE
L491650	AK9239	82.9m	Jan 92	(1)
L491650 · L491651	АК9239А	609.95m	Feb 92	(1).
L491662 L491663	AK9240	716.4	Feb 92	(1)
L491183 · L491182	AK9241	916.Om	Mar 92	(1)
L491662 and 663	AK92 42	556 . 8m	Aug 92	(1)
L491651	AK9243	648.1m	July 92	(1)
L491663 L491651	AK9244	814.1m	Aug 92	(1)
L491663 L491651	AK9245	401.5m ·	Aug 92	(1)
L491663	Ak 9225	198.5m	Aug 92	(1)
L500057 L477419	AK9130	387.45	• Aug 91	(1)
L491662 1491663	AK9131	409.75	Aug 91	(1)
L491663	AK9132	390.8	Aug 91	(1)

<u>DI/</u>

DIAMOND DRILLING

TOWNSHIP: TECK TOWNSHIP

REPORT NO:

WORK PERFORMED FOR:

RECORDED HOLDER: SAME AS ABOVE []

: OTHER []

CLAIM NO.	HOLE NO.	FOOTAGE	DATE	NOTE
L491650 L491651	AK 9133	454.75	Aug 91	(1)
L491182 L491183 •	АК 9135	365.5m	Sept 91	(1)
L491663 L491662	AK-9138	619.1	Oct 91	(1)
	15	7571.6 M		

NOTES:

(1) REPORT OF WORK #928000263

FILED FEBRUARY 18TH 1993



Ministry of Northern Development and Mines

Sudbury, Ontario, P3E 6A5, telephone (705) 670-7264.

Report of Work Conducted After Recording Claim

Mining Act





900

Instructions: - Please type or print and submit in duplicate.

Personal Information collected on this form is obtained under the authority of the Mini this collection should be directed to the Provincial Manager, Mining Lands, Minist

- Refer to the Mining Act and Regulations for requirements of filing assessment work or consult the Mining Recorder.
- A separate copy of this form must be completed for each Work Group.
- Technical reports and maps must accompany this form in duplicate.
- A sketch, showing the claims the work is assigned to, must accompany this form.

Recorded Holder(s) BATTLE MOUNTAIN (CANADA) IN	C.	Client No. 105640
Address 390 BAY STREET, SUITE 2910,	TORONTO, ONT., M5H 2Y2	Telephone No. (416) 867-9815
Mining Division LARDER LAKE	Township/Area TECK TOWNSHIP	M or G Plan No. M 392
Dates Work From: January 13, 19	92 ^{To:} Decemb	er 4, 1992

Work Performed (Check One Work Group Only)

	Work Group	Туре	
	Geotechnical Survey		
x	Physical Work, Including Drilling	DIAMOND DRILLING	
	Rehabilitation	GIS - ASSESSMENT FILES	
	Other Authorized Work	JAN 2 8 1993	
	Assays	FOENVED	
	Assignment from Reserve	REJUGAL TO THE STATE OF THE STA	
		410, 910	

Total Assessment Work Claimed on the Attached Statement of Costs \$ 419,810

Note: The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

Persons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

Name	Address
W. Benham (Author)	921 Willowdale Ave., Willowdale, Ont. M2M 3C2
M. Masson (Geologist)	12 O'Meara Blvd., Kirkland Lake, Ont. P2N 2T6
Heath & Sherwood (1986) Drilling Inc.	P. O. Box 993, Kirkland Lake, Ont. P2N 3L3
Swastika Laboratories	P. O. Box 10, Swastika, Ontario POK 1TO

(attach a schedule if necessary)

Certification of Beneficial Interest * See Note No. 1 on reverse side

I sould at a state time the work was performed, the claims sourced in this work	Date	Recorded Holder or Agent (Signature)
report were recorded in the current holder's name or held under a beneficial interest	Dec 18/92	Owel & Terst
by the current recorded holder.	/	

Certification of Work Report

I certify that I have a perso its completion and annexe	onal knowledge of the facts set forth i d report is true.	n this Work report, having performed th	ne work or witnessed same during and/or after
Name and Address of Person	Certifying		
Wayne Benham,	921 Willowdale Avenu	ue, Willowdale, Onta:	rio, M2M 3C2
Telepone No. (416) 222-447	4 Dec 17/9	7 2 Certified By (Signature)	J.Fa
For Office Use Only	PaulSava	d.	LARDERLAKE
Total Value Cr. Recorded	Date Recorded	Mining Beorder	Received Stamp
allig SID	Deemed Approval Date	Date Approved	32 DEC 30 AM 8 51
	Date Notice for Amendments Sent		TRE-GETVED

0241 (03/91)

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units	Value of Assessment Work Done on this Claim	Value Applied to this Claim	Value Assigned from this Claim	Reserve: Work to be Claimed at a Future Date	ate from	h respect
	491182	1	4,588	0	0	4,588		c., wit
	491183	1	74,705	0	0	74,705	please	nts, et
	491650	1	27,128	0	0	27,128	ations,	reeme
	491651	1	145,276	0	0	145,276	Ich delt	m of ag
	491662	1	58,599	0	0	58,599	ing: sof such as the second such	orandu
	491663	1	109,514	0	0	109,514	rds. vork.	, memc
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	6		419,810	0	0	419,810	I Crec	Exar to th
41 (03/91)	Total Number of Claims		Total Value Work Done	Total Value Work Applied	L Total Assigned From	Total Reserve	T 3. 2. 4 Kick	Note 1:

•

Date

Signature

I certify that the recorded holder had a beneficial interest in the patented or leased land at the time the work was performed.



Type

Wages

Fees Droits de

Salaires

Contractor's and Consultant's

l'entrepreneur

et de l'expertconsell

Supplies Used

Fournitures

Equipment

Location de matériel

Filing Discounts

calculations below:

Total Value of Assessment Credit

Rental

utilisées

Northern Development

1. Direct Costs/Coûts directs

Labour

DRIFFING

ASSAYING

YPO FIELD

OFFICE **SUPPLIES**

PRINTING

COPYING

SPERRY SUN

all or part of the assessment work submitted.

the above Total Value of Assessment Credit.

Туре

Type

Main-d'oeuvre

Field Supervision Supervision sur le terrain

ère du eloppement du Nord et des mines

Statement of Costs for Assessment Credit

État des coûts aux fins du crédit d'évaluation

Mining Act/Loi sur les mines

Totals

Total global

52.805

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used to maintain a record and ongoing status of the mining claim(s). Questions about this collection should be directed to the Provincial Manager, Minings Lands, Ministry of Northern Development and Mines, 4th Floor, 159 Cedar Street, Sudbury, Ontario P3E 6A5, telephone (705) 670-7264.

Description

SURVEYING, DRAFTING

SUPPLIES

DATA PROCESSING

Amount

Montant

115,728

230,538

17,323

4,848

1.591

1,390

2.707

6.866

Total Direct Costs Total des coûts directs

Note: The recorded holder will be required to verify expenditures claimed in

1. Work filed within two years of completion is claimed at 100% of

2. Work filed three, four or five years after completion is claimed at

50% of the above Total Value of Assessment Credit. See

this statement of costs within 30 days of a request for verification. If

verification is not made, the Minister may reject for assessment work

72

Total Assessment Claimed

Les renseignements personnels contenus dans la présente formule sont recueillis en vertu de la Loi sur les mines et serviront à tenir à jour un registre des concessions minières. Adresser toute quesiton sur la collece de ces renseignements au chef provincial des terrains miniers, ministère du Développement du Nord et des Mines, 159, rue Cedar, 4^e étage, Sudbury (Ontarlo) P3E 6A5, téléphone (705) 670-7264.

2. Indirect Costs/Coûts Indirects

- ** Note: When claiming Rehabilitation work Indirect costs are not allowable as assessment work. Pour le remboursement des travaux de réhabilitation, les
 - coûts indirects ne sont pas admissibles en tant que travaux d'évaluation.

Турө	Descri	ption N	Amount Aontant	Totals Total global
Transportation Transport	Type VEHICLES	12	2,383	
	FUEL		2,232	
	SHIPPING 6 COURIER		740	
Food and Lodging Nourriture et hébergement		10	.693	
Mobilization and Demobilization Mobilisation et démobilisation		3	.963	
	Sub To Total partiel	tal of Indirect des coûts inc	Costs directs	
Amount Allowable (Montant admissible	(not greater thai (n'excédant pa	a 20% of Direct (a 20 % des coûti	Costs) s directs)	a de onte
Total Value of Asse (Total of Direct and A Indirect costs)	ssment Credit Allowable	Valeur totale du d'évaluation (Total des coûts d et indirects admiss	rects	A10.810

Note : Le titulaire enregistré sera tenu de vérifier les dépenses demandées dans le présent état des coûts dans les 30 jours sulvant une demande à cet effet. Si la vérification n'est pas effectuée, le ministre peut rejeter tout ou une partie des travaux d'évaluation présentés.

Remises pour dépôt

- 1. Les travaux déposés dans les deux ans suivant leur achèvement sont remboursés à 100 % de la valeur totale susmentionnée du crédit d'évaluation.
- 2. Les travaux déposés trois, quatre ou cinq ans après leur achèvement sont remboursés à 50 % de la valeur totale du crédit d'évaluation susmentionné. Voir les calculs ci-dessous.

Valeur totale du crédit d'évaluation	Evaluation totale demandée	
× 0,50 =		

Attestation de l'état des coûts

J'atteste par la présente :

que les montants indiqués sont le plus exact possible et que ces dépenses ont été engagées pour effectuer les travaux d'évaluation sur les terrains indiqués dans la formule de rapport de travail ci-joint.

Et qu'à titre de _____ je suis autorisé (titulaire enregistré, représentant, poste occupé dans la compagnie)

à faire cette attestation.

Transaction No./Nº de transaction

 $\times 0.50 =$

Certification Verifying Statement of Costs

I hereby certify:

that the amounts shown are as accurate as possible and these costs were incurred while conducting assessment work on the lands shown on the accompanying Report of Work form.

Vice President and Manager of Exploration, I am authorized (Recorded Holder, Agent, Position in Company) that as

to make this certification



0212 (04/91)

Nota : Dans cette formule, lorsqu'il désigne des personnes, le masculin est utilisé au sens neutre.



1

Battle Mountain (Canada) Inc.

KIRKLAND LAKE PROJECT

REPORT ON 1992 DIAMOND DRILLING PROGRAMMES PHASE I - JANUARY TO MARCH PHASE II - JUNE TO AUGUST

"102/103/104" GOLD ZONES AMALGAMATED KIRKIAND PROPERTY TECK TOWNSHIP, LARDER LAKE MINING DIVISION ONTARIO, CANADA

Toronto, Ontario November, 1992

,

W. Benham T. J. Bottrill 020

Battle Mountain (Canada) Inc.

KIRKLAND LAKE PROJECT

REPORT ON 1992 DIAMOND DRILLING PROGRAMMES PHASE I - JANUARY TO MARCH PHASE II - JUNE TO AUGUST

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Toronto, Ontario November, 1992

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W. Benham T. J. Bottrill Battle Mountain (Canada) Inc.

KIRKLAND LAKE PROJECT REPORT ON DIAMOND DRILLING PROGRAMMES PHASE I - JANUARY TO MARCH, 1992 PHASE II - JUNE TO AUGUST, 1992

"102/103/104" GOLD ZONES AMALGAMATED KIRKLAND PROPERTY TECK TOWNSHIP, LARDER LAKE MINING DIVISION ONTARIO, CANADA

VOLUME I

TEXT & APPENDICES

Kirkland Lake, Ontario October, 1992

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W. Benham T. J. Bottrill

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Battle Mountain (Canada) Inc.

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Amalgamated Kirkland Drilling, 1992

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DC-036-1 to 3	Section 8000 E, Holes AK92-39, 39A, 43	1:500
DC-006-1 to 4	Section 8050 E, Holes AK92-39A, 43, 44	1:500
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DC-017-1 to 3	Section 8400 E, Hole AK92-40	1:500
DC-065	Section 8400 E, Hole AK92-40	1:500

Battle Mountain (Canada) Inc.

November, 1992

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VOLUME III

LIST OF DRAWINGS

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	"A-5, A-6" and "107" Zones	1:2,500
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DC-046	Section 7500E	1:2,500
DC-047	Section 7600E	1:2,500
DC-048	Section 7900E	1:2,500
DC-049	Section 8000E	1:2,500
DC-050	Section 8050E	1:2,500
DC-051	Section 8100E	1:2,500
DC-052	Section 8150E	1:2,500
DC-053	Section 8200E	1:2,500
DC-054	Section 8250E	1:2,500
DC-055	Section 8300E	1:2,500
DC-056	Section 8350E	1:2,500
DC-057	Section 8375E	1:2,500
DC-058	Section 8400E	1:2,500
DC-059	Section 8425E	1:2,500
DC-060	Section 8450E	1:2,500
DC-061	Section 8500E	1:2,500
DC-062	Section 8600E	1:2,500
DC-063	Section 8700E	1:2,500
DC-064	Section 8800E	1:2,500
DC-067	Composite Cross-Section "102" Gold Zone	1:2,500
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DC-073	Composite Cross-Section "102/103/104"	•
	Gold Zones With Significant Intersections	1:2,500

1.0 SUMMARY

During 1992, Battle Mountain (Canada) Inc. completed two diamond drilling programmes on the Amalgamated Kirkland Property located in Teck Township, Ontario. Phase I, which consisted of four holes for a total of 2,325.25 metres, was carried out from January 22nd to March 15th, 1992. Phase II, which consisted of a total of 2,476.1 metres in five holes, was completed during the period June 16th to August 15th, 1992. A combined total of 4,801.35 metres was drilled during 1992 to further test the economic potential of the "102/103" gold zone. This zone was discovered in 1989 during an overburden stripping programme and drill tested at shallow depths in 1990, as well as to vertical depths up to 525 metres in 1991.

The Phase I drilling programme was planned to test the "102/103" structure at the 500-600 metre level in three holes at widely-spaced intervals of 200 to 400 metres along strike. The first hole was abandoned at a shallow depth due to a broken core barrel and, as a result, a total of four holes were drilled (AK92-39, -39A, -40 and -41).

Two of the three completed holes intersected significant gold mineralization. Hole AK92-39A returned 6.74 g/t Au over 25.7 metres, at a vertical depth of 435 metres, including three separate intersections of (1) 69.20 g/t Au over 1.50 metres, (2) 6.75 g/t Au over 4.50 metres, and (3) 5.95 g/t Au over 3.90 metres. Hole AK92-40 intersected 9.47 g/t Au over 0.90 metres at a vertical depth of 585 metres within a wider 14.9 metre interval of sericite + chlorite alteration. Hole AK92-41 intersected the "102/103" structure over a core length of 36.8 metres at a vertical depth of 760 metres, but no anomalous assays were returned.

The 1992 Phase II drill programme was planned to further test the "102/103" gold zone around the higher grade and wider intersections from holes AK91-31, -38 and AK92-39A. Four holes were drilled (AK92-42 to- 45), as well as a 55.6 metre extension of hole AK90-25.

Hole AK92-45 intersected significant gold mineralization, as 6.35 g/t Au over 8.50 metres, at a vertical depth of 235 metres, including 23.48 g/t Au over 1.70 metres. In addition, two narrow zones were intersected in the hanging wall of this section, which assayed

5.11 g/t Au over 0.5 metres and 14.55 g/t Au over 0.5 metres respectively. The only other significant gold mineralization from the 1992 Phase II drilling was intersected in hole AK92-42, where a 0.6 metre wide interval within the parallel "104" zone assayed 16.67 g/t Au. Holes AK92-42, -43 and -25 Ext intersected weakly mineralized intervals within the "102" and "103" zones. Hole AK92-44 intersected the target zones deeper than planned, as three weakly altered intervals which are interpreted to be the "102", "103" and "104" zones respectively, but did not return any significant assays.

Drilling to date has shown that the "103" zone has the greatest potential for the development of economic mineralization above 600 metre level over a strike length of 1,500 metres. Within this area thirteen holes have intersected the "103" zone, of which two (or 15%) are well mineralized (AK92-39A, AK92-45), six (or 46%) are significantly mineralized, while the remaining seven are weakly to non-mineralized. The percentage of significant intersections for the Amalgamated Kirkland "103" zone compares very favourably with the historical experience from drilling on the nearby Kirkland Lake Main Break in the Macassa Mine, as well as within other economic, vein-hosted gold deposits in the Canadian shield.

Whilst the diamond drilling completed to date has intersected significant gold mineralization over appreciable widths, considerably closer space drilling would be required to determine if underground exploration of the "102/103/104" gold zones is warranted; such underground exploration would be required in order to establish whether the mineralization is of economic grade and dimensions. Therefore, further surface exploration drilling of the Amalgamated Kirkland property is recommended as the next stage of exploration.

Specifically, it is recommended that the "102/103/104" gold zones be further tested by a staggered 50 metre horizontal by 100 metre vertical drill pattern from section 79+00E to 84+00E between the 150 metre and 600 metre levels. Additional drilling is recommended to test the "102/103/104" zones in the interval from 79+00E to 74+00E, as well as in the interval from 84+00E to 87+00E, at a staggered 100 metre horizontal by 200 metre vertical drill pattern between the 100 metre and 500 metre levels.

2.0 INTRODUCTION

This report describes the results of the two 1992 diamond drilling programmes which were carried out by Battle Mountain (Canada) Inc. ("BMCI") on the Amalgamated Kirkland property located in the Kirkland Lake gold district in northeastern Ontario, Canada. Surface channel sampling in 1989, as well as diamond drilling during 1990 and 1991, had encountered significant gold mineralization within the newly discovered "102/103" structure, over widths up to 8 metres, along a strike length of 1,550 metres and to a vertical depth of 525 metres.

The 1992 Phase I drill programme was planned to further test the "102/103" structure at the 500-600 metre level in three holes (AK92-39 to -41), at widely-spaced intervals of 200 to 400 metres along strike, in an attempt to further demonstrate the overall size potential of the mineralization. A total of 2,325.25 metres was drilled from January 22nd to March 15th, 1992. Three holes were planned. The initial hole, AK 92-39, was abandoned due to a broken core barrel and extreme hole deviation; hole AK92-39A was drilled to test the same target.

The Phase II 1992 drill programme was planned to further test the "102/103" gold zone around the higher grade and wider intersections in holes AK91-31, -38 and AK92-39A. Four holes (AK92-42 to -45), as well as a 55.6 metre extension of hole AK90-25, were drilled from June 16th to August 15th, 1992, for a total of 2,476.1 metres.

The 1992 total of 4,801.35 metres was drilled by Heath & Sherwood Drilling (1986) Inc. of Kirkland Lake and 1,488 core samples were assayed by Swastika Laboratories Ltd. in Swastika. The core was logged by Mark Masson, B.Sc., who was assisted by a technician, B. Madill; the programme was supervised by W. Benham, B. Sc., the BMCI Kirkland Lake Project Geologist. The drill hole collars were surveyed by Northland Technical Services. Downhole directional surveys were completed by M. Masson and B. Madill utilizing single-shot Sperry-Sun equipment. The drill plans and sections accompanying this report were drafted by B. Madill. The logs were typed by C. Anderson, and the final logs processed by MDC Geological Consultants using WordPerfect 5.1. Head office supervision and technical advice was provided by T. J. Bottrill, BMCI Senior Geologist, Canada.

2.1 Location and Access

The property is located in the Larder Lake Mining Division in the southeast quarter of Teck Township, immediately south and southwest of the Town of Kirkland Lake (NTS 42 A/1; UTM 538800 E, 568600, N; Figures 1 & 2).

Access to the northeastern part of the property is provided by Main, Queen and Earl streets in the Town of Kirkland Lake and the Hunton Shaft bush road. Access to the northwest is along various trails leading from Government Road West in Chaput-Hughes, and from the Industrial Plaza on Highway 66. A gravel road, which joins the Highway at a point approximately midway between the GMC City dealership and the Industrial Plaza, was used to provide access for heavy equipment such as diamond drills and backhoes. This private road crosses patented claims held by Mr. Joe Morgan of Swastika, who kindly gave his permission for its use.

Parallel and adjacent right-of-ways for hydro and natural gas lines cross the northern part of the property, leading to the co-generation plant which is located on claim L447912, south of the Town.

2.2 <u>Claims</u>

The Amalgamated Kirkland property consists of twenty-seven claims (Figure 2) optioned by Queenston Mining Inc. (formerly HSK Minerals Ltd.) from Premier Explorations Inc., Michael Leahy, Ron Chrichton and James Forbes. The property is currently held by BMCI as part of an option agreement with Queenston Mining Inc. dated June 15, 1989.

An application for lease, mining rights only, was submitted November 12, 1987. The survey was subsequently approved in early 1992, and a revised application for lease was submitted by Premier Explorations, et al. on November 3rd, 1992. The surface rights are held by the Corporation of the Town of Kirkland Lake.

2.3 <u>Topography and Vegetation</u>

Seventy percent of the property consists of low rounded knolls and ridges, whilst the remaining thirty percent is tag alder and black spruce swamps. Elevations are from 305 to 345 metres ASL. Thirty percent is outcrop and shallow soil, whilst overburden, consisting of glacial till one to twenty metres thick, covers the remainder of the claims. The southwesterly flowing Murdock Creek divides the property approximately in half.

Most of the property that is not occupied by the alder and spruce swamps is covered by second growth poplar bush with local, small stands of birch, spruce, balsam and pine.

2.4 Site Rehabilitation

Previous attempts to fence potentially hazardous water-filled trenches and sumps used as a source for drilling water were unsuccessful because the fences were either knocked down or stolen by intruders. Four days were spent rehabilitating these water hazards and steepsided slopes in the previously overburdened stripped areas. This work was done by Alex MacIntyre & Associates Ltd. from September 15th to 18th, 1992 under the supervision of W. Benham.



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3.0 REGIONAL GEOLOGY AND MINERALIZATION

The Kirkland Lake district is in the Abitibi Greenstone belt of the Archean Superior Province of the Canadian Shield. It lies to the south of the major east-west trending Blake River synclinorium, the northern and southern limbs of which are defined by the Destor-Porcupine and Larder Lake-Cadillac Fault Zones or "Breaks". Most of the historical gold production in the Abitibi Belt is spatially associated with these two regional structural zones. The southern limb of the Blake River synclinorium in the Kirkland Lake area consists of tholeiitic volcanics of the Kinojevis Group. These are unconformably overlain by the trachytic volcanic and clastic sedimentary rocks of the Timiskaming Group, and their associated syenitic intrusives (Figure 3). The southern boundary of the Timiskaming Group is marked by the regionally south-dipping Larder Lake Fault Zone or thrust. The assemblage to the south of this fault consists of the Larder Lake Group, consisting of komatiitic and tholeiitic volcanic rocks with thin interflow graywacke, argillite and iron formation sedimentary rocks. The Larder Lake Group is intruded by plutons of pyroxenite, gabbro and syenite, including the Lebel, Murdock Creek and Otto syenite stocks.

The Kirkland Lake gold camp has produced in excess of 23 million ounces of gold from quartz-veined shoots in a deposit known historically as the Kirkland Lake Break or Mile of Gold. There were six producing mines along the deposit, of which the one remaining active producer is the Macassa Mine of Lac Minerals Ltd, at the west end of the deposit. The deposit strikes 067°, with a dip to the south of 75°-80°. It lies mostly within augite-syenites which intrude interbedded coarse tuffaceous and clastic sedimentary units of the Timiskaming Group. The augite-syenites and the country rocks are intruded in the area of the deposit by hypabyssal felsic syenite plugs and by syenite porphyry dykes. All of the intrusive phases are comagmatic with the enclosing trachytic volcanic rocks. Some of these plugs and dykes are locally mineralised or form one of the walls of the shoots. The entire deposit has been dismembered by a complex series of younger, steeply dipping reverse faults, of which the largest is known as the "Kirkland Lake Main Break". Many of the larger shoots lie against, or are terminated by, one or more of the branches of this fault system.

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The Kerr Addison Mine, which is located 36 km to the east in the Larder Lake district, has produced in excess of ten million ounces, and is still in production. This ore deposit is hosted by altered and strongly sheared mafic to ultramafic volcanics of the Larder Lake Group immediately to the south of the Larder Lake Fault Zone, and is associated with altered plugs and dykes, known locally as "albitite", of unknown original composition. It contains two distinct ore-types: "green-carbonate ore", as quartz veins in altered ultramafic volcanic rocks; and "flow-ore", as pyritic, altered and deformed variolitic, pillowed basalts, with only minor quartz veining. Both ore types are spatially associated with the "albitite" plugs and dykes, but they have different distribution and plunges on the longitudinal section.

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November, 1992



Amalgamated Kirkland Drilling, 1992

4.0 PROPERTY GEOLOGY

The Amalgamated Kirkland property is underlain by Timiskaming Group volcanic sedimentary and related intrusive rocks in the north half, and by the Murdock Creek syenite stock intruding Larder Lake Group volcanic rocks to the south. These are separated by a broad zone of shearing and carbonate alteration along the Larder Lake Fault Zone (Figure 4).

4.1 <u>Stratigraphy</u>

The Timiskaming Group is a series of interbedded clastic sedimentary rocks and coarse pyroclastic and epiclastic volcanic rocks, together with minor flows, intruded by semiconcordant bodies of multi-phase syenite. The majority of the rocks on the property are pyroclastic or epiclastic with dominantly locally derived volcanic or equivalent hypabyssal clasts, interbedded with relatively thin, sedimentary layers. To the north of the property, and on the northernmost claims around the Hunton Shaft the sequence is dominated by finer grained sedimentary rocks. A similar dominantly volcanic sequence to that on the Amalgamated Kirkland property encloses the majority of the host syenite complex which forms the wall rocks to the Kirkland Lake gold-quartz deposit immediately to the north. It is not known whether these volcanic units are the same horizon, exposed on either side of a major fold (the "Kirkland Lake Syncline") or separate units in a south-facing, homoclinal sequence. No consistent and reliable facing indicators have been established in the units on the property.

The individual stratigraphic units are difficult to distinguish due to rapid along-strike and down-dip gradations and interfingering between pyroclastic volcanic rocks, epiclastic volcanic rocks and clastic sediments. These sedimentary and volcanic rocks are diagnostic of a dynamic palaeo-environment, with extreme topographic relief and multiple volcanic pulses. This type of environment is also characterised by syn-deformational growth-faults, which further complicate stratigraphic correlation. This complex stratigraphic and syn-depositional structural situation is indicative of deposition close to the original volcanic source. Stratigraphic interpretation is further hampered by later structures, consisting of isoclinal folds as well as numerous, closely spaced faults which dismember the individual layers in the stratigraphic assemblage, as well as the fold limbs, into isolated segments.



The unit historically interpreted as an augite syenite within the "Amalgamated Kirkland Syenite" (described below) is more probably a series of mafic trachyte flows. No other units which can be more clearly defined as flows have been mapped on the property.

The coarsest pyroclastic rock is a block to lapilli tuff with variously sized, angular, polymictic fragments in an ash matrix of similar composition. Most of the fragments are different coloured phases of porphyritic trachyte¹ with different phenocryst sizes and densities. This rock is typically strongly magnetic and forms a distinct mappable unit north of the Larder Lake Fault Zone, and just south of the base line. Other, lapilli-tuff units grade progressively into rocks with fewer and finer clasts, and to rocks with a finer matrix.

The distinction between the volcanic and the sedimentary rocks is based on the presence of quartz grains and/or jasper grains or clasts in the rocks described as sediments. It is, however, often difficult to distinguish between the lapilli-tuffs and the conglomerates, in core or outcrop, or between their finer equivalents as ash-tuffs and graywackes, particularly where the original rocks are pervasively altered by chlorite and carbonate, as on most of the property.

Whilst the sedimentary units typically include conglomerates, graywackes and mudstones, it is possible to distinguish horizons which are characterised as containing a higher proportion of conglomerate from others which are dominantly graywacke and mudstone. One unit is a distinctive, thinly bedded, inter-layered black mudstone and light grey siltstone. This distinctive banded unit was seen to grade rapidly into a lapilli-tuff.

The Larder Lake Group rocks to the south of the Larder Lake Fault Zone are found as large xenoliths or roof-pendants within the Murdock Creek Stock, or as highly strained units within the broad area underlain by the Larder Lake Fault Zone. These rocks were originally mafic and ultramafic volcanic rocks, with minor interbedded clastic sediments and iron formations. They are now amphibolites or various talc + chlorite + carbonate schists.

¹ "Trachyte" is a local field term used to describe volcanic rocks with a trachytic texture, locally including phenocrysts which have been called pseudo-leucites; the actual chemical composition of these rocks, whether as flows or pyroclastic units, is difficult to establish due to the pervasive regional alteration, but they may be phonolites or basaltic-andesites. There are no preserved feldspathoidal mineral which would definitely indicate an "alkalic" petrological association.

4.2 Intrusive Rocks

The Murdock Creek syenite is a multi-phase, zoned body covering most of the property south of the Larder Lake Fault Zone. The area east of Murdock Creek is mostly a fine- to medium-grained leuco-syenite phase, whereas that to the west is mostly a medium- to coarse-grained meso-syenite. There is a distinct area of carbonate alteration within the stock, orientated 015° and just to the east of Murdock Creek, which was previously described as "felsite". This alteration zone may mark the extension of the Lakeshore Fault to the south of the Larder Lake Fault Zone.

The northernmost part of the property is mostly underlain by a complex body referred to historically as the "Amalgamated Kirkland Syenite". Most of the outcrop exposures are of a leuco-syenite and are feldspar-phyric. The area to the west, which is poorly exposed beneath the swampy area south of the Industrial Plaza, has been shown on previous maps (e.g. Thomson, 1950) as mafic syenite, presumably based on the historical drilling of the Amalgamated Kirkland mineralization. However, drilling by BMCI in 1991 has shown that both the eastern (hole AK91-34) and the western (AK91-37) areas are mostly underlain by mafic trachyte (previously described as augite syenite), intruded by numerous feldspar porphyry dykes. The latter are clearly more resistive to weathering, giving the false impression in the outcrop mapping of the proportions of the felsic syenite relative to the host mafic trachyte.

Smaller bodies mapped as syenite intrude the Timiskaming volcanic and sedimentary rocks south of the Amalgamated Kirkland syenite. Most of these are orientated close to 070°, the principal mineralized direction. However, some units mapped previously as syenite are probably a phase of hematitic alteration, possibly related to the mineralization.

4.3 <u>Structure</u>

Dips and strikes within the Timiskaming volcanic and sedimentary units are highly variable. Between the baseline and the "Amalgamated Kirkland Syenite", a series of 25 to 50 metre thick sedimentary units strike 225° to 315° and display a complex pattern of tight, isoclinal anticlinal and synclinal folds. The central limb of these drag-folds is often missing, being represented by a zone of shearing, leaving mostly east closing, and few west closing fold

patterns, mostly defined by the interbedded sedimentary units. Local dip and strike measurements as mapped are often conflicting, possibly because they represent original high angle of rest sedimentary structures within the original high energy palaeo-environment.

The main mineralized zones which have been discovered on the property are parallel to the axial planes of these folds, and may represent replacement bodies along the axial planes. Alternatively, they may occupy syn-depositional structures reactivated during subsequent structural events. There are distinct facies differences in the units to the north and south of the "102/103" mineralized zone, as well as between the units to the north and south of the base line. These facies boundaries are marked by the diabase dyke which is located along the south margin of the "Amalgamated Kirkland Syenite" and by the "100" structure, which is defined by a series of narrow syenite dykes and faulting trending 060° to 070°. These boundaries probably represent growth faults within the interbedded volcanic and sedimentary sequence. The faults along the northern and southern boundaries of the distinctive, highly magnetic coarse block tuff, which is located south of the baseline, are interpreted to be the western continuation of the North and Middle Harvey Faults on the Kirkland Gold Rand property to the east (Thomson, 1950).

The principal structural feature on the property is the Larder Lake Fault Zone, which lies between the Timiskaming Group and the Murdock Creek Stock. Geological mapping and diamond drilling by BMCI on the Kirkland Gold Rand property, to the immediate east of the Amalgamated Kirkland, has demonstrated that the fault zone dips south at 45° - 50°, and is a complex of splay faults enclosing variably deformed and altered volcanic rocks of the Larder Lake Group (Masson, 1991; Benham, 1991).

The Amalgamated Kirkland Fault strikes 050° and passes through the northwest corner of the property. The dip of this fault is about 80° to the southeast as indicated by mud-filled faults and shear zones intersected by the two underground holes which were drilled by Macassa Mines Ltd. from the 3,000 foot level near the northwest corner of the property.

The Murdock Creek Fault strikes at 040° (035° to 045°) through the centre of the property and appears to off-set or deflect the trace of the Larder Lake Fault Zone. Based on the underground development in the Glenora shaft to the northeast of the property this fault dips to the northwest at 75°-80°. A series of closely-spaced, northwest dipping faults, sub-parallel to the Murdock Creek Fault dissect the Timiskaming volcanic and sedimentary

assemblage throughout the property, with a dominantly sinistral sense of motion. These are referred to as the "Murdock Creek Fault set". They are seen in the field and core as chlorite + carbonate \pm sericite \pm pyrite alteration zones with closely spaced pressure-solution cleavage, and locally with minor fault gouge. These faults post-date and off-set the major mineralized zones on the property.

The Lakeshore Fault strikes 020° (015° to 025°) and dips to the west at 75°-80°. It passes along the eastern side of claim L.500057, and possibly extends to the south of the Larder Lake Fault Zone within the Murdock Creek Syenite. It appears to be the youngest of the faults on the property. There are many small fault off-sets at outcrop scale across the property with similar orientation and dextral motion which form the "Lakeshore Fault set".

5.0 ALTERATION AND MINERALIZATION

The principal mineralization on the property is the "102/103" zone, as discussed below. This gold mineralization is associated with pyritic, sericitic, and carbonate alteration. The highest grade gold mineralization is found in silicified, blue-grey quartz-breccia zones containing up to 30% fine grained pyrite, as well as local and minor galena, sphalerite and molybdenite.

Distinctive alteration zones have been mapped around the quartz + pyrite + gold mineralization. The outermost alteration consists of intense development of chlorite and carbonate. The alteration progresses towards the mineralized zone into an outer envelope of sericite replacing the chlorite, and of hematite replacing the primary magnetite in the sedimentary and volcanic rocks. Closer to the mineralization there is a distinctive zone of alteration with the development of euhedral chlorite spots within the sericite and carbonate groundmass. These chlorite spots may be replacing an earlier unknown phyllosilicate or peraluminous mineral. One phase of the hematitic alteration is represented by a strong red colouration in a strongly albitized quartz + carbonate + sericite rock which is difficult to distinguish from the syenite dykes. However, it is not usually porphyritic, except where it replaces originally porphyritic trachyte clasts. In the main zone of alteration and mineralization which host the quartz veins and breccia zones, the hematite is replaced by pyrite and the remaining chlorite by sericite.

Whilst the mineralization in the "102/103" zone is clearly related to sericite alteration, there is little accompanying foliation or "sericite-schist". The structural controls on the mineralization are not fully understood, but the zone appears to be related to either syndepositional growth-faults, and/or to the axes of one or more tight folds within a complex of drag-folded and faulted, interbedded, coarse pyroclastic and epiclastic units. The mineralized zones strike approximately 070° and dip south at approximately 80-82°; they are offset by northeast striking and northwest dipping cross faults, probably as part of the Murdock Creek Fault set.

Other parallel zones of similar character have been identified to the north and south of the "102/103" zone, but have been less intensely explored and, as a result their character is less well defined. These include the "99", "101", "104" and "105" zones.

Other mineralized zones on the property are located within and around the Amalgamated Kirkland Syenite. Mineralization to the east was explored historically from the Hunton shaft (see below), and is mostly a series of quartz veins within Timiskaming Group sedimentary rocks and the syenite. The mineralization to the west overlaps the boundary of the property, immediately beneath and to the east of the Industrial Plaza; it is known as the Amalgamated Kirkland Zone. Historical drilling as well as BMCI holes AK91-34 and AK91-37 have demonstrated the existence of a number of altered and gold-anomalous zones within the Amalgamated Kirkland Syenite between these two mineralized areas, i.e. the "105", "106", "A-5, -6" and "107" zones.

6.0 PREVIOUS WORK

6.1 Work Done Prior to BMCI/Queenston Agreement

The Amalgamated Kirkland property has a long history of exploration activity dating from the initial discovery of mineralization in the Kirkland area on the Hunton shaft claim in 1911. Since that time, various prospecting, mapping, trenching, geophysical surveys and diamond drilling programmes have been carried out on specific targets such as quartz veins at the east (Hunton Shaft, or "107" zone) and west (Amalgamated Kirkland, or "106" zone) ends of the historically mapped "Amalgamated Kirkland Syenite" along the northern part of the property; carbonate alteration zones in close proximity to the Larder Lake Fault Zone which crosses the central portion of the claim block; carbonate alteration zones within the Murdock Creek Stock which occupies most of the southern half of the property.

The area which is mostly underlain by Timiskaming volcanic and sedimentary rocks between the Larder Lake Fault and the "Amalgamated Kirkland Syenite" had not been intensely explored prior to 1989, except for numerous shallow prospector's trenches which probably date back to the period from 1911 to 1924.

Limited exploration, about which very little is recorded, was carried out around 1919 on a property known as the Canadian Kirkland, which may be equivalent to the old trenches now referred to as the "101" zone. Alternatively it may be equivalent to the Amalgamated Kirkland zone ("106") as no clear location is recorded on subsequent maps. The Canadian Kirkland No. 1. vein is described in the Northern Miner of March 15th, 1919 as about 700 feet long, consisting of blue-black altered porphyry with quartz veins and considerable pyrite, and minor chalcopyrite and molybdenite. A 540 foot length "carried from \$1.20 to \$17.40" (at \$20.00 gold in 1919), but no widths are given. Their No. 2 vein is 350 feet north and described as a blue quartz vein, 12 feet wide, with molybdenite and fine iron sulphides.

6.2 <u>BMCI/Queenston Agreement Programmes, 1989-91</u>

During the 1989 field season, a line cutting, geological mapping and overburden stripping programme was carried out by BMCI to explore all of the property, but with the specific objective of exploring the Timiskaming volcanic and sedimentary rocks which had been relatively neglected in the past. This programme was specifically designed to search for mineralization based on a model of the stratigraphic and structural controls of the mineralization within the Kirkland Lake gold-quartz deposit (the "Kirkland Lake Main Break") as well as within the Upper Canada Mine deposit, 16 kilometres to the east in Gauthier Township.

The initial grid was cut with a survey controlled base line orientated at 071°, with cross lines every 100 metres. Intermediate lines were cut 50 metres apart as far south as 96+00N in the winter of 1990 (i.e. across the Timiskaming Group and the Larder Lake Fault Zone).

This 1989 programme resulted in the discovery of two anomalous gold-bearing alteration zones (Bottrill, 1990; Benham, 1990) within the Timiskaming sedimentary and volcanic rocks. The "101" zone was located in the re-exposure of a historical trench at 72+90E (the "101-7290" showing; possibly part of the Canadian Kirkland workings, close to the southern of their two shafts) where it averaged 2.48 g/t Au over a width of 6 metres. The "102" zone was discovered in one of a series of long overburden-removal "trenches", cut normal to the apparent stratigraphy and regional strike of the mineralization at 070°. Initial channel samples cut in the early winter of 1989-90 assayed up to 2.22 g/t Au across 6 metres including 5.0 g/t Au over 1.5 metres. Other anomalous samples were located along strike and a small section of the zone was stripped of overburden to the east of the original discovery at 102+40N, 83+50E. Both showings were associated with sericitic, pyritic, silica-breecia and vein zones striking 070°, parallel to the other major mineral deposits in the district.

A total field magnetometer and vertical gradiometer survey were completed during the winter and spring of 1990 over the entire grid (Roth, 1990). A detailed IP survey (Roth, 1990a) was completed over the Timiskaming sequence north of the Larder Lake Fault Zone and south of the power-line which runs close to the northern boundary of the property. Linear zones of low magnetic amplitude, related to the pyritic replacement of magnetite, with corresponding, but intermitted, weak chargeability and high resistivity anomalies from the IP survey, were found to be associated with the newly discovered mineralized structures. Similar

magnetic anomalies along strike of both the "101" and "102" zones, as well as others located to the north and south and parallel to the known mineralization (the "99", "100", "101", "102", "104", "105", "106", and "107" zones), provided an indication of the overall style and distribution of the major stratigraphic units as well as the alteration and structural system on the property, and more specifically indicated exploration targets for diamond drilling and/or further trenching (Figure 5).

During the summer of 1990, additional overburden stripping, detailed mapping and channel sampling were completed (Benham, 1990a). The interpreted "102" structure was traced intermittently as a gold-bearing, pyritic, sericitic, silicic alteration zone for a strike length of 540 metres from 79+10E to 84+50E. The exposed mineralization, which was channel-sampled at close spacings, averaged 3.40 g/t Au over 4.18 metres for a strike length of 55 metres in the "102-8350" zone; and 2.98 g/t Au over 5.03 metres for a strike length of 38 metres in the "102-8170" zone (Figure 6). Selected grab samples returned assays up to 36.55 g/t Au and individual channel samples across the zone were up to 8.36 g/t Au over a width of 3.80 metres. A new showing of native gold, which was named the "99-8030" zone, returned a channel sample assay of 797.5 g/t Au across 0.45 metres.

During October 15, 1990 to December 13, 1990, a diamond drilling programme was carried out (Benham, 1990b). Twenty-eight holes for a total of 3,318.67 metres were drilled to test the gold zones discovered by BMCI, as well as some of the geophysical anomalies outlined by the BMCI magnetometer and IP surveys.

Most of this drilling was concentrated along strike for 300 metres to the west and 250 metres to the east of the original "102" discovery showing at 83+50E, and to a vertical depth of 115 metres. Quartz + pyrite breccia zones, 0.5 to 6.2 metres wide, within a broader zone of hematized, sericitized and silicified altered tuffs, graywackes and mudstones were found in most of the holes.

Mineralized intersections varied considerably in width and grade in the nineteen holes completed in this area. Some were relatively narrow quartz vein structures (such as 11.25 g/t Au over 0.60 metres in hole AK90-09) whereas others were multiple vein and breccia zones





within broader alteration envelopes (e.g. 7.64 g/t Au over 4.00 metres in hole AK90-06). Other significant intersections included 3.58 g/t Au over 2.55 metres in hole AK90-08; 3.14 g/t Au over 2.80 metres in hole AK90-18; 2.25 g/t Au over 8.45 metres in hole AK90-21; and 2.74 g/t Au over 3.75 metres in hole AK90-24.

Holes AK90-22 and AK90-11, drilled 200 metres further east and west respectively along strike from the 550 metre long mineralized section of the "102" zone, failed to return any significant mineralization. Hole AK90-11, intersected over 20 metres of altered sericitic tuffs, graywackes and mudstones, but without any mineralized pyrite + quartz breccia zones. Subsequent re-interpretation of the data indicates that hole AK90-22, which was drilled from north to south, was not drilled far enough to intersect the "102/103" zone; however, it crossed a broad silicified, pyritic alteration zone which was barren, but which may be related to either the parallel "104" zone, or the cross-cutting Lakeshore Fault.

Hole AK90-28, drilled just to the east of the "101-7290" trench (and possibly the southern Canadian Kirkland Shaft) returned 1.89 g/t over 2.0 metres. This mineralization may be either the western extension of the "102" zone, or the separate sub-parallel "101" zone as initially identified in the sampled trench.

The shallow holes (AK90-12 to -14) were drilled at 50 metre spacings beneath the surface showing of the "99" zone. Whilst no anomalous assays were returned, all three holes intersected a broad zone of alteration, and given the subsequent intersection ratio on the other zones, the "99" zone remains a target worthy of further drilling.

Testing of the "100" structure in three holes (AK90-15, -16, and -27) did not return any anomalous assays. The magnetic lows and IP anomalies, which were the targets of these holes, are due to zones of sericite + carbonate + hematite alteration zones with quartz veining and pyrite, but no significant gold mineralization.

As a result of the 1990 drill programme, significant shallow gold mineralization was identified along the "102" structure, over a strike length of 1250 metres, from 73+50E to 86+00E, and at vertical depths of 20 to 119 metres. However, the extreme variation in the assay results between the closely spaced holes beneath the original showing did not indicate the presence of immediately obvious economic mineralization.

A follow-up drill programme was completed from July 29 to October 3, 1991, with the objective of testing the identified strike potential from the shallow drilling, but at greater depths, in the search for a body of more continuous higher grades over a wider interval. The program consisted of ten holes for a total of 3,718.35 metres, with most of the holes targeted at about the 300 metre (1000 foot) depth, or at shallower depths in the wider gaps between the existing holes.

Hole AK91-29, tested the "102" zone 100 metres to the east of hole AK90-26, i.e. in the section not reached by hole AK90-22, 120 metres further east. It intersected weak mineralization over a core length of 12.00 metres.

Holes AK91-30, 31, 32 and 33 tested the "102" structure on very wide step-outs at 200 metre intervals, and with planned pierce points at approximately the 300 metre level in the section from 80+00E to 86+00E, i.e. below the original showing and down a presumed plunge to the west. Of these holes, AK91-31, beneath part of the original showing, returned a significant intersection of 9.70 g/t Au over 5.15 metres at a vertical depth of 315 metres. The remaining three holes intersected 20 to 40 metre wide zones of sericite alteration which are associated with the "102" structure.

Hole AK91-38 was targeted at a vertical depth of 525 metres, to follow up the intersection in hole AK91-31, but some 210 metres deeper. It encountered 38 metres of sericite alteration, pyrite mineralization and quartz + albite veining from which the highest assayed interval was 1.97 g/t Au over 5.10 metres.

Of these deeper holes, AK91-30, -31, -33 and -38, were drilled from north to south to avoid hole inclination problems due to the northwest dipping Murdock Creek fault set. Each of these intersected a mineralized zone, lying 55 to 75 metres horizontally to the north of the "102" zone, which is now referred to as the "103" zone. The highest grade intersection from this zone was 3.63 g/t Au over a core length of 3.10 metres in hole AK91-31, whilst the other holes returned lower grade but anomalous intervals. A reinterpretation of the drill results following completion of the 1992 program indicates that the 1991 intersections in the "103" zone are probably the strike extensions of the northern intersections in 1990 drill holes AK90-02, -25 and -29, as well as possibly in hole AK90-03. The remainder of the short 1990 holes
(including AK90-21 and -26), as well as 1991 hole AK91-32, were not drilled far enough to the north to intersect the trace of the "103" zone as presently interpreted.

Given the wide spacing of the mineralized intersections, and the uncertainties in the dip and/or correlation of the zones, or of the plunge of the mineralized bodies, the overall section which contains a number of anomalous to significantly mineralized intervals, mostly bounded by the individual "102" and "103" zones as identified at present, is referred to collectively as the "102/103" zone.

In addition, the first of the 1991 holes drilled from the north, AK90-30, intersected what is probably the same alteration zone as in AK90-22, lying yet further to the north, and now referred to as the "104" zone, co-incident at surface with the geophysically inferred "104" structure. (When first intersected in AK91-30 this was referred to as the "103" zone.) This new zone in hole AK90-30 returned 2.88 g/t Au over a core length of 4.50 metres. This same zone may have been intersected in holes AK91-31 and -33, where it was weakly anomalous to barren.

Holes AK91-35 and 36 were drilled as a cross-section along 76+00E to test a series of geologically and geophysically interpreted structures, any one of which could represent the projected extension of the "102/103" structures, in the large undrilled gap between the "101-7290" (Canadian Kirkland shaft) zone tested by AK90-28 on 73+50E and the "102-7912" zone, of which the closest hole was AK90-11 on 79+00E.

Hole AK91-35 intersected the "102" zone where it averaged 0.13 g/t Au over 3.00 metres. Another zone, which assayed 3.11 g/t Au over 3.45 metres, including 18.88 g/t Au over 0.55 metres, was encountered 90 metres to the north of the interpreted "102" zone intersection. This northern zone could be the western extension of the "103" zone or the "104" zone, and represents a significant intersection within a 500 metre long strike interval of the "102/103" zone where there is no other drilling.

There were no anomalous assays in the short hole AK91-36 which tested a linear low magnetic anomaly and feldspar porphyritic syenite dykes associated with the interpreted "100" structure.

Two holes were drilled into the area of the "Amalgamated Kirkland Syenite" and the immediately adjacent sedimentary and volcanic rocks in order to test various linear zones of low magnetic amplitude sub-parallel to the "102/103 zone, close to areas of historical drilling with indications of mineralization, and between the Hunton shaft mineralization to the east and the historically defined Amalgamated Kirkland zone to the west.

Hole AK91-34, along section 81+90E, tested part of the "Amalgamated Kirkland Syenite", where mineralized intersections had been reported from holes A5 and A6 drilled in 1939. An altered zone within the sedimentary rocks, south of the contact with the "Amalgamated Kirkland Syenite", interpreted as the "105" structure, returned 0.28 g/t Au over 3.4 metres. Three hematitic, brecciated feldspar porphyritic syenite dykes, intruding mafic trachytic flows (historically referred to as mafic or augite syenite), assayed 0.27 g/t Au over 5.0 metres, 1.15 g/t Au over 0.70 metres and 0.28 g/t Au over 8.6 metres.

Hole AK91-37 was drilled in the northwest corner of the property, below and to the east of shallow mineralization known historically as the Amalgamated Kirkland zone. Shallow drilling in 1939 intersected up to 10.6 g/t Au over 3.6 metres in a series of holes (Drawing DL-009). Two zones of weakly anomalous gold mineralization were intersected. These are related to brick-red hematitic, feldspar-porphyritic syenite dykes which contain trace pyrite and minor quartz + albite veining, and which intrude mafic hornblende and feldspar porphyritic trachyte flows ("mafic syenites") and interbedded polymictic pebble conglomerates. Two weakly mineralized sections averaged 0.44 g/t Au over 10.20 metres, including 2.39 g/t Au over 1.00 metres and 0.18 g/t Au over 25.00 metres, including 1.46 g/t Au over 0.50 metres. The first intersection is considered to be the westward extension of the "105" zone while the second intersection is interpreted to be the down-dip extension of the Amalgamated Kirkland or "106" zone.

Overall, the deeper drilling on the "102/103" structure in 1991 indicated that:

- the mineralized system extends to a depth of at least 525 metres (AK91-38);
- near ore grades are present over estimated true widths of 3.00 metres (AK91-31, 9.70 g/t Au over 5.15 metres) on the "102" zone;

- a series of sub-parallel zones exist within the overall "102/103" zone, with discovery of the "103" and "104" zones immediately north of the mineralization on the "102 zone, each with significant intersections in widely spaced holes; and
- Significant mineralization exists in the 500 metre gap between 73+50E and 79+00E, possibly on the "103" or "104 structures.

Further deep drilling along the combined "102/103" zone at the 500 metre level was recommended to evaluate the overall potential of the "102/103" structure.

Additional potential exists within the "106", "107", etc. zones closer to the north boundary of the property, as lower priority targets for later follow-up.

7.0 1992 DRILL PROGRAMME

The 1992 diamond drilling on the Amalgamated Kirkland property was completed in two stages, Phase I, consisting of 2,325.25 metres during the winter, and Phase II consisting of 2,476.1 metres during the summer, for a total of 4,801.25 metres.

Down hole Sperry Sun directional surveys were completed for previously drilled holes AK91-30, -31, -32, -33, -35 and -38 during the Phase II programme. Revised summary pages for these holes with the survey results are located in Appendix I.

7.1 Phase I Drilling Programme

The 1992 Phase I diamond drilling was started on January 22, and completed on March 15, 1992 by Heath & Sherwood Drilling (1986) Inc. of Kirkland Lake. Four, NQ diameter holes, AK92-39, -39A, -40 and -41, were drilled for a total of 2,325.25 metres. A total of 681 sawn core samples were assayed for gold by Swastika Laboratories using one assay ton fusions.

Three drill holes were planned to further test the "102/103" structure at the 500 to 600 metre level, 200 metres and 600 metres to the west, as well as 200 metres to the east, of hole AK91-38. Four holes were drilled because the first hole had to be abandoned at a depth of 92.9 metres due to a broken core barrel which was stuck in the hole. Holes AK92-39, -39A and 40 were drilled from north to south, and AK92-41 from south to north.

Phase I Drill Results

The results of the Phase I 1992 drilling are described in drill logs AK92-39, -39A, -40 and -41 (Appendix I) and shown on drill sections DC-006-2, -3; DC-017-1, -2, -3; DC-036-1, -2; DC-038; DC-039-1 to -4; and DC-065, all at a scale of 1:500. Drill hole locations are shown on drill plan DP-003 and simplified geology plan GL-030 at a scale of 1:2,500. A

summary listing of diamond drill holes including significant gold intersections is presented in Table I. Assay certificates are located in Appendix II and all sampled intervals and assay results are recorded in the drill logs. The Phase I drill intersections are shown on vertical longitudinal sections of the "102", "103" and "104" zones, at a scale of 1:2,500, on Drawings DL-006, DL-007 and DL-010 respectively, and a combined vertical longitudinal section of all three zones on DL-008.

Hole AK92-39A, intersected the "103" zone where it averaged 4.75 g/t Au over a core length of 38.0 metres, from 453.0-491.0 metres, at a vertical depth of 435 metres. Within this interval there was a shorter section which averaged 6.74 g/t Au over 25.7 metres and which included three individual intervals of:

69.20 g/t Au over 1.50 metres

6.75 g/t Au over 4.50 metres, and

5.95 g/t Au over 3.90 metres.

The high grade section over 1.50 metres is a quartz + pyrite + native gold silicified zone, whilst the other two significant sections are quartz + albite + pyrite + galena \pm sphalerite zones. These are within pyritic, sericitic, massive to well bedded graywackes with interbedded sericitic mudstones and mudstone rip-up clasts, within which the mudstone clasts are frequently replaced partially or almost totally by very fine grained pyrite. There are minor quartz veins throughout the entire mineralized interval.

A 0.30 metre wide section of silicified, sericitic sheared mudstones with 1% fine grained pyrite, which was intersected from 536.25 to 536.55 metres at a vertical depth of 490 metres, is interpreted to be the "102" zone, but no anomalous assays were returned.

In Hole AK92-40, a 14.9 metre wide interval of weakly mineralized, silicified mudstones, siltstones and graywackes, which was intersected from 357.10 to 372.0 metres at a vertical depth of 360 metres and assayed trace gold, is considered to be the western continuation of the "104" structure which was encountered in hole AK91-30.

		Col	lar			Total Dates (1992)				Intersec	tions		
Hole No.	Easting	Northing	Elevation	Dip	Azimuth	Length	Started	Completed	Zone	From	То	Au g/t	Length (metres)
AK92-39	8,000.0	10,380.0		-75.0	161	82.90	22-Jan	26-Jan		Hole at	ondoned		
AK92-39A	7,999.0	10,378.7	344.4	-77.5	158	609.95	26-Jan	08-Feb	103	453.00 includi	491.00 ng	4.75	38.00
							-			457.40 and	488.00	5.83	30.60
										457.40 includi	483.10 ng	6.74	25.70
										457.40 and	458.90	69.2 0	1.50
								•		469.50 and	474.00	6.75	4.50
										479.20	483.10	5.95	3.90
									102	No sign	nificant a	ssays	-
AK92-40	8,395.0	10,433.4	327.4	-75	161	716.40	09-Feb	25-Feb	102	607.80	608.70	9.47	0.90
									103	No sign	nificant a	ssays	
									104	No sign	nificant a	ssays	
AK92-41	7,599.7	10,007.4	337.3	-75	341	916.00	26-Feb	15-Mar	102	No sig	nificant a	ssays	
									103	No sigi	nificant a	ssays	
TOTAL		_				2,325.25							

TABLE I SUMMARY LISTING OF DIAMOND DRILL HOLES - 1992 (PHASE I)

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An altered zone was intersected in hole AK92-40 from 607.80 to 641.90 metres (core length of 34.1 metres). A narrow quartz + pyrite + chlorite zone from 607.80 to 608.70 metres at a vertical depth of 585 metres along the sheared contact between weakly sericitic conglomerates and lapilli tuffs, assayed 9.47 g/t Au over a core length of 0.90 metres. This is considered to be the "103" zone; although it is somewhat further north than projected based on the intersections further to the west, it is at least 180 metres from any other hole, and possibly off-set on one or more faults. No anomalous assays were returned from the remainder of this altered zone.

Barren quartz and quartz breccia veins with traces of pyrite and chalcopyrite were intersected from 691.90 to 692.35 (0.40 m). The upper contact of this zone is marked by a blue grey mud-gouge. These veins possibly could be the "102" zone.

Hole AK92-41 was drilled to test the "102/103" structure at the 625 metre level, 400 metres to the west of hole AK92-39A. It was targeted to intersect the "102/103" zone where it was projected to lie within the "Amalgamated Kirkland Syenite", based on a shallower southerly dip for this contact than for the mineralized zone. This hole did not flatten as expected, and, as a result, the targets were intersected deeper than planned. The Amalgamated Kirkland Syenite was never intersected. A strongly foliated and silicified zone, with 1% quartz veins and trace pyrite, was intersected from 754.80 to 757.00 metres at a vertical depth of 700 metres. This section is interpreted to be the "102" zone but it returned only trace gold. The "103" zone was intersected from 791.00 to 827.80 metres (36.8 metres). It consists of an 18.0 metre wide sericitic, chloritic stockwork zone with chloritic slips, quartz veinlets and silicified pods with trace to 1% pyrite from 791.00 to 809.00 metres and a 1.70 metre wide sericitic foliated zone with 2-3% quartz veins and 1-2% pyrite from 822.20 to 823.90 metres which is followed by a weakly foliated section to 827.80 metres at a vertical depth of 760 metres. These zones only assayed trace gold with the best assay being 0.19 g/t Au over 1.00 metre.

7.2 Phase II Drilling Programme

The 1992 Phase II drilling programme was started on June 16, and completed on August 15, 1992 by Heath & Sherwood Drilling (1986) Inc. of Kirkland Lake. Four NQ diameter holes, AK92-42, 43, 44 and 45, were drilled, and hole AK90-25 was deepened 55.6 metres, for a total of 2,476.1 metres. A total of 797 sawn core samples were assayed for gold by Swastika Laboratorics using one assay ton fusions. Hole AK92-42 was drilled from north to south, whilst the remaining holes were drilled from south to north.

The purpose of this four hole programme was to test the "102/103" gold zones at distances of about 100-150 metres around the previous better intersections in holes 31, 38 and 39A.

Phase II Drill Results

The results of the 1992 Phase II drilling are described in drill logs AK92-42, -43, -44, -45 and AK90-25/92-25 Ext. (Appendix I) and are shown on drill sections DC-006-1, -2, -3, -4; DC-007; DC-008-1, -2, -3; DC-010-1, -2, -3; DC-036-3; and DC-066-1, -2, at a scale of 1:500. Drill hole locations are shown on drill plan DP-003 and simplified geology plan GL-030 at a scale of 1:2,500. A summary listing of the drill holes including significant gold intersections is presented in Table II. Assay certificates are located in Appendix II and all sampled intervals and assay results are recorded in the drill logs. The phase II intersections are shown on vertical longitudinal sections of the "102", "103" and "104" zones, at a scale of 1:2,500 on Drawings DL-006, DL-007 and DL-010 respectively, and a combined vertical longitudinal section of all three zones on DL-008.

<u>Hole AK92-42</u> was planned to intersect the "102/103" gold zones, midway between holes AK91-31 and -38 on section 82+00 E. From 300.6 to 312.0 metres, it intersected a zone of weakly to moderately sheared, sericitic graywacke with 1-5% quartz veins and trace to 1% pyrite over widths of 0.1 to 1.6 metres. A 0.6 metre wide sample from 311.0 to 311.60 metres assayed 16.67 g/t Au, while the rest of the zone did not return any anomalous assays. This zone is interpreted to be the "104" zone rather than the "103", because it appears to be further north than the projection of the "103" zone based on adjacent holes.

Amalgamated Kirkland Drilling, 1992

TABLE II

SUMMARY LISTING OF DIAMOND DRILL HOLES - 1992 (PHASE II)

	Coliar				Length	Dates (1992) Intersect				ctions			
Hole No.	Easting	Northing	Elevation	Dip	Azimuth	Total	Started	Completed	Zone	From	То	Au	Length
												g/t	(metres)
AK92-42	8,188.8	10,374.9	332.3	-71	161	507.50	16-Jun	26-Jun	104	311.00	311.60	16.67	0.60
ļ									103	432.00	432.70	1.15	0.70
									102	468.00	474.00	0.23	6.00
AK92-42E						49.30	13-Aug	15-Aug	102?	505.50	510.00	0.38	4.50
AK92-43	8,095.5	9,985.0	333.3	-73	341	648.10	26-Jun	07-Jul	102	No sig	nificant a	ssays	
									103	549.00	552.10	0.82	3.10
	1									563.30	563.80	2.31	0.50
									104 -	591.00	596.00	0.15	5.00
AK92-44	8,148.2	9,931.5	324.7	-75	341	814.10	20-Jul	05-Aug	102	642.2	647.0	0.10	4.80
									103	No sig	nificant a	ssays	
									104	No sig	nificant a	assays	
AK92-45	8,124.5	10,105.0	340.6	-70	341	401.50	07-Aug	12-Aug	102	No sig	nificant a	ssays	
									103	305.0	331.5	2.53	26.50
										305.7	306.2	5.11	0.50
										and inc	luding	A A A	14 20
										includi	1g	7.77	14.50
										315.2	315.7	14.55	0.50
										321.0	329.5	6.35	8.50
										includii 323.3	1g 325.0	23.48	1.70
										with and	49.1 g/t 4.70% pl	Ag, 0.34 b	% Cu
			-						104	No sig	nificant a	assays	
AK92-25E	8,124.2	10,150.8	339.3	-55	341	55.60	12-Aug	13-Aug	103	No sig	nificant a	assays	
									104	No sig	nificant a	ssays	
TOTAL						2,476.10							
1992 TOTA	L					4,801.35							

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A strong sericitic shear zone with 20-30% white to pink quartz veins and trace pyrite was intersected from 432.0 to 432.7 metres, and assayed 1.15 g/t Au over 0.70 metres. A chlorite \pm quartz \pm pyrite "crack and seal" fracture zone in bleached lapilli tuffs was intersected from 442.0 to 450.1 metres but returned no anomalous assays. This section is similar in appearance to the "102" zones which were intersected in holes AK90-7 and AK90-24, but it does not contain appreciable amounts of quartz and pyrite. The interval of bleached lapilli tuffs from 399.0 to 450.1 metres is thought to be the "103" zone.

Sericitic and chloritic graywackes with irregular chloritic fractures and sporadic narrow quartz \pm pyrite \pm albite veins were intersected from 461.3 to 468.0 metres. This interval is followed by moderately well foliated sericitic conglomerates with no appreciable quartz veining or pyrite mineralization from 468.0 to 478.9 metres. A 6.0 wide interval from 468.0 to 474.0 metres averaged 0.23 g/t Au, but the section with the pyritic quartz veins assayed nil to trace gold. The samples may have been mixed up for this section, but the assays are too low to warrant quartering the core. The interval from 461.3 to 474.0 metres was interpreted initially as the "102" zone. However, holes AK92-43 and 45, which were drilled later above and below hole AK92-39A respectively, indicated the apparent dip of the gold zones to be 80° south versus the earlier interpretation of 87°south, indicating that the initial hole had not been long enough to cross the projected position of the "102" zone. In addition there was weak alteration and geochemically anomalous assays at the very bottom of the hole.

Therefore the hole was re-entered on August 13th and extended 49.3 metres from 507.5 to 556.8 metres to intersect the "102" zone, about 150 metres down dip from the significant intersection in hole AK91-31. Moderately to well foliated sericitic conglomerates, graywackes and tuffs, with 1-3% narrow irregular quartz veins and trace disseminated pyrite were intersected from 505.5 to 517.0 metres. Unfortunately, no well mineralized quartz + pyrite breccia veins were intersected. The interval from 505.5 to 510.0 metres averaged 0.38 g/t Au over 4.5 metres.

A 9.5 metre interval, from 539.5 to 549.0 metres, has 6-8%, 4 to 45 cm wide, off-white to green grey, dense, quartz + carbonate \pm barite (?) \pm celestite (?) veins (which contain trace to 3% galena and trace to 0.5% chalcopyrite) within hematitic, magnetic ash to lapilli tuffs. This apparent fault-related late vein set assayed trace to nil Au.

<u>Hole AK92-43</u> was planned to test the "102/103" zones at the 550 metre level, 125 metres to the west of hole AK91-38 and 125 metres below and 50 metres to the east of hole AK92-39A. However, it deviated considerably to the west and intersected the "103" zone 75 metres below and 25 metres to the west of the "103" intersection in hole AK92-39A.

A 22.1 metre wide interval, from 448.4 to 470.5 metres, of moderately deformed and sericitic graywackes with weakly pyritic chlorite + albite + quartz veins is interpreted as the "102" zone. There were no anomalous assays from this interval.

From 543.5 to 569.8 metres, the graywackes are dark grey-blue, weakly silicified and contain trace to 2% fine grained pyrite. This interval is interpreted as the "103" zone, but it did not contain any gold + pyrite + quartz breecia veins, similar to those in hole AK92-39A. The interval from 549.0 to 553.0 metres averaged 0.67 g/t Au over 4.00 metres.

A 5.0 metre wide section of moderately well foliated conglomerates from 591.0 to 596.0 metres returned geochemically anomalous gold assays which averaged 0.15 g/t Au. This interval is interpreted to the "104" zone.

The interpreted "103" zones which were intersected in holes AK92-39A and 43 indicate an apparent dip of 80°-82° to the south versus a dip of 87-90° to the south as interpreted from the earlier shallow drill holes on section 81+90E. This apparent change in dip at depth could be due to a "roll" in the structure, flattening with depth as happened along parts of the Kirkland Lake gold-quartz deposit ("Main Break"), or cross faulting. A number of the earlier assignments of mineralization to the various zones have been changed as a result of this revised interpretation of the dip, particularly in those earlier holes with multiple intersections.

Hole AK92-44 was drilled to test the "103" zone at the 600 metre level on section 80+00E. This hole, which deviated considerably to the west and did not flatten as much as AK92-43, intersected the target zone 40 metres further to the west and 80 metres deeper than planned.

The "102" zone was intersected from 640.5 to 648.0 metres where it consists of 1-2% narrow, irregular quartz + chlorite veins with trace pyrite and chalcopyrite in weakly sericitic

graywackes. Geochemically anomalous assays averaging 100 ppb Au over 4.8 metres were returned for the interval from 642.2 to 647.0 metres, at a vertical depth of 605 metres.

Weakly to moderately foliated, sericitic ash tuffs, graywackes and conglomerates with 1-3% narrow quartz + albite veins and trace pyrite were intersected from 730.00 to 737.85 metres. This 7.85 metre wide interval, which is interpreted to be the "103" zone, did not return any anomalous assays.

There are weakly to moderately sericitic graywackes down hole from an apparent 80° southerly dipping shear zone at 774.65 to 775.25 metres to 800.0 metres. These contain 1-3% white quartz veins and 1% blue green chlorite + quartz veins with trace pyrite. This 25.35 metre wide interval is interpreted to be the "104" structure, but no anomalous assays were returned.

<u>Hole AK92-45</u> tested the "103" zone at the 285 metre level on section 81+00E. This hole intersected a broad zone of alteration and mineralization over a core length of 24 metres from 305.7 to 329.7 metres. This intersection is approximately 140 metres up dip and 40 metres to the east and in the same plane as the significant intersection in the hole AK92-39A. Within this interval, there was a significant mineralized section from 321.0 to 329.5 metres, which averaged 6.35 g/t Au over 8.50 metres, including 23.48 g/t Au and 49.1 g/t Ag over 1.70 metres from 323.3 to 325.0 metres. This 1.70 metre interval consists of a quartz + sulphide breccia vein with 10-15% pyrite, 3-10% galena (average 4.7% Pb) and 0.5-1% chalcopyrite (average 0.34% Cu).

Two additional, narrow mineralized sections were intersected in the hanging wall and assayed 5.11 g/t Au over 0.5 metres from 305.7 to 306.2 metres. The interval from 315.2 to 329.50 metres averaged 4.44 g/t Au over a core length of 14.30 metres.

A 5.05 metre wide interval of moderately sericitic and bleached lapilli tuff from 393.10 to 398.15 metres is interpreted to be the "104" zone. No anomalous assays were returned for this alteration.

Assuming an 80° south dip which is indicated by the "103" zone intersections in holes AK92-39A, 43 and 45, the "102" zone in hole AK92-45 was expected to be encountered at about 230 to 240 metres, where instead there were massive, chloritic, undeformed ash to

lapilli to block tuffs. It is assumed that the "102" structure possibly narrows to a thin, unrecognizable "crack" in hole AK92-45.

Hole AK90-25 was deepened 55.6 metres, from 142.9 metres to 198.5 metres, to test the "103" zone about 160 metres up dip from Hole AK92-45, based on the revised interpretation of the dip of the zones, and the resulting indication that the original hole had not been long enough to intersect the "103" zone, the existence of which was unknown at the time the hole was drilled. Moderately well foliated and sericitic ash to lapilli tuffs and graywackes, with quartz + chlorite "crack and seal" textures and trace pyrite were intersected from 135.5 to 149.55 metres. This interval is thought to be the "103" zone, but the highest assay was only 0.17 g/t Au over 0.60 metres from 144.50 to 145.10 metres.

From 183.30 to 190.00, a 6.70 metre wide interval of chloritic to weakly sericitic graywacke was intersected, containing a weak to moderate "crack and seal" texture, which is associated with hairline to 3 mm wide quartz + chlorite veinlets. This barren interval is interpreted to be the "104" zone in hole AK92-25 Ext.

7.3 Geochemical Analysis

A limited number of trace element analysis of selected samples from the intersections in holes AK92-39A and -40 returned up to 26 g/t Ag, 0.91% Pb and 3.02% Zn. The mineral described as leucoxene in the AK92-39A drill log is probably a white sphalerite. Only traces of arsenic and tellurium were detected in holes AK92-39A and -40. Fifteen samples from the "103" sericitic alteration zone in hole AK92-41 were assayed for lead and zinc to see if the structure is anomalous in these elements when no anomalous gold assays are present. All of these samples returned background contents of 1-8 ppm Pb and 45-68 ppm Zn.

Trace element analysis for the well mineralized vein, which was intersected in hole AK92-45, returned weakly anomalous 40-90 ppm antimony, 140-510 ppm arsenic and 17-54 ppm tellurium.

The dense late veins with up to 3% galena, which were intersected in hole AK92-42 at 547.5 to 548.0 metres, assayed 210 ppm barium, 350 ppm strontium, 5,800 ppm lead and

530 ppm copper. The high density of these veins is possibly a combination of their sulphide, barite and celestite content.

7.4 Discussion of Drill Results

The results of the 1992 drill programmes are significant because the wide and high grade gold intersections in holes AK92-39A and -45 indicate that potentially economic gold mineralization is present in the "103" zone over substantial mineable widths (6.74 g/t Au over 25.70 metres, estimated horizontal width 9.15 metres and 6.35 g/t Au over 8.50 metres, estimated horizontal width 5.10 metres respectively). Together with the somewhat lower grade and narrower intersections in holes AK91-31, -38 and AK92-40, the combined 1991 and 1992 deeper drilling programmes have demonstrated that there is a zone with considerable continuity, especially given the exploration experience from drilling in the district, and the less encouraging results from adjacent holes in the drilling of the original "102" zone discovery. The "103" zone extends from a depth of 200 metres to 600 metres and over a strike extent from 80+50E to 84+00, and is open to the east and west with depth. It is now apparent that the "103" zone is the more immediately obvious zone with potential for developing a body of economic mineralization once sufficient drilling is completed.

There are additional, although weaker, intersections in holes AK-92-42 and -43 which lie just outside this area of the contiguous higher grade mineralization. The distribution of these higher grade intersections is consistent with a shallow plunge of the mineralized zone to the east, especially if the significant intersection in hole AK91-35 is considered to be part of the "103" zone. The narrow intersection in hole AK92-40 (9.47 g/t Au over 0.90 metres) indicates that the overall system is mineralized at depth on section 84+00E and below the initially interpreted barren intersection in hole AK91-32. This earlier hole was probably not drilled far enough to the north to intersect either of the "103" or "104" zones.

The percentage of drill holes which have intersected significant or anomalous mineralization along the "103" zone above the 600 metre level are quite comparable to those experienced historically along the Kirkland Lake gold-quartz deposit, and reported from the Macassa mine (mine geologist, pers. comm.). Of the thirteen holes which have clearly intersected the "103" zone, two holes, or 15%, are strongly mineralized (AK92-39A and -45),

four additional holes (AK91-31, -35, -38 and AK92-40), are significantly mineralized, for a total of 46%, and the remaining seven holes are weakly to non-mineralized (AK90-02, -25, AK91-29, -30, -33, AK92-42 and -43).

Considering the widely-spaced drill intercepts of 75 to 400 metres (average 187 metres or 150 metres if holes 29, 30 and 35 are excluded), the above percentages compare very favourably with the Macassa Mine and other economic vein-hosted gold deposits where "hit" ratios for closer, 15 by 30 metre, drill hole patterns are similar.

Although holes AK92-41 and -44 did not cut any significant mineralization, the weakly pyritic altered zones which were intersected below the 600 metre level, over substantial estimated true widths of up to 18 metres, indicate that the "102/103/104" system extends to a depth of at least 760 metres.

The widely-spaced drilling to date has intersected significant mineralization in three zones, the "102", "103" and "104", within an approximately 100 metre wide variably mineralized, veined, altered and deformed zone which has been traced across the property for a strike length of 1,500 metres. The significant gold intersections in the "102", "103" and "104" zones are shown on a composite section, DC-073, at a scale of 1:2,500.

Although most of the drilling below the 100 metre level is too widely spaced to permit an accurate interpretation, correlation of the "102", "103" and "104" gold zones and/or alteration zones from hole to hole is possible as shown on drill sections DC-045 to 064 at a scale of 1:2,500. Composite drill sections, DC-067, 068 and 069, of the "102", "103" and "104" gold zones indicate that the mineralized zones can be traced to depth from section to section. The drill results indicate an apparent dip of the zone of 80° south (versus a previously interpreted 87° south dip) with possible local "rolls", en echelon lenses, and/or fault offsets of, on average, probably less than 5 metres, but up to 20 metres.

Of the three principal zones, the "102" zone contains the highest grade and widest mineralization above the 200 metre level, although most of the shallow 1990 drill holes were not drilled far enough to the north to intersect the "103" and "104" zones, which were discovered during the later 1991 drilling programme.

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Drilling to date has shown the "103" zone to have the most potential between the 200 and 600 metre levels, and the "99", "104" and "101" zones have insufficient drilling to indicate the potential distribution of any mineralization. However, given that the better intersections in the "104" zone are at the east end, and the "101" zone at the west end, it is possible that the mineralization is distributed *en echelon* across the entire "101/102/103/104" zone from the northeast to the southwest.

The local concentrations of sphalerite (hole AK92-39A) and galena (hole AK92-45) together with the absence of a major syenite intrusive association indicate the "102/103/104" mineralized zones may be more comparable to the Upper Canada deposits rather than the Kirkland Lake ore bodies. The "106" and "107" zones, which were intersected in holes AK91-34 and 37, are associated with altered hematitic feldspar porphyritic syenite dykes and may be more comparable to the geological setting of the Kirkland Lake gold-quartz deposits.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Widely spaced drilling below the 200 metre level and to vertical depths of 525 to 760 metres has shown the "102/103/104" structure to have the potential to host an economic gold deposit. However, considerably closer-spaced drilling would be required to determine the average grade, shape, plunge, size and economic potential of the mineralization along the overall "102/103/104" gold zone.

It is recommended that the area from section 79+00E to 84+00E, between the 150 metre and 600 metre levels, be drill tested on a staggered 50 metre horizontal by 100 metre vertical pattern. Further drilling is recommended east and west of this area at a staggered 100 metre horizontal by 200 metre vertical pattern between the 100 metre and 500 metre levels to test the "102/103/104" structure, i.e. from the west of section 79+00E, to the property boundary near 74+00 E, and to the east of section 84+00E, as far as 87+00E, close to the area of influence of the Murdock Creek Fault.

Deeper drilling at the 600-800 metre level is recommended to test the "106" and "107" zones where potentially more favourable and brittle syenite host rocks are present. Further drilling is also warranted along the "99" structure where high grade mineralization was discovered in outcrop in 1990, and which was only followed up by three close-spaced shallow holes, all of which intersected a 5 to 25 metre wide sericitic alteration zone.

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Battle Mountain (Canada) Inc.

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November, 1992

APPENDIX I

DIAMOND DRILL LOGS

Battle Mountain (Canada) Inc.

November, 1992

HOLE: AK-92-39

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PROPERTY TOWNSHIP CLAIM No. STARTED COMPLETED PURPOSE COMMENTS	Amalgamated Kirkland Teck L 491650 January 22, 1992 January 26, 1992 To test "102" zone at 50 Hole lost @ 82.9 m. due	DATE LOGGED LOGGED BY DRILLED BY CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT 0 m. level. e to broken core barrel	January 28, 1992 Mark Masson Heath & Sherwood Kirkland Lake Ware B.M.C.I. Sperry Sun SIGNED BY	house <u>(W. Benham</u>)	EASTING NORTHING ELEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	8000.0 10380.0 82.9 metres NQ	Depth Collar 23.0 61.0 61.0	Method Compass Acid Sperry Sun	Azimuth 161 164	Dip 75 75 72 72 72
		SUN	MMARY LOG	<u> </u>				ASSAY S	SUMMAR	Y
INTERVAL From To	DE	SCRIPTION	INTERVAL From To	D	ESCRIPTION		INTERVAL From To	LENC	GTH A res	VERAGE Au g/t
0.00 3.00 3.00 20.90 20.90 23.10	0 OVERBURDEN 0 ASH/LAPILLI TUFI 0 SILTSTONE/MUDS	F STONE			·······					

	SUM	ASSAY SUMMARY					
INTERVAL From To	DESCRIPTION	INTERVAL From To	DESCRIPTION	INTERVAL From To	LENGTH in metres	AVERAGE Au g/t	
0.00 3.00 3.00 20.90 20.90 23.10 23.10 51.00 51.00 57.40 52.80 78.00 78.00 82.90 82.90	OVERBURDEN ASH/LAPILLI TUFF SILTSTONE/MUDSTONE LAPILLI TUFF 31.05 - 31.15 Fault at 60° tca. SILTSTONE/MUDSTONE GRAYWACKE LAPILLI TUFF SILTSTONE/MUDSTONE/LAPILLI TUFF E. O. H.			Note: No	samples were	taken.	

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INTE	RVAL	DESCRIPTION	SAMPLE							ASSAYS		
FROM	ТО		No.	From	То	Length %Rec	%Py %Q	V %Ser	Au, g/t	Au, Check		
0.00	1.50	OVERBURDEN			- h			<u></u>				
3.00	20.90	 ASH/LAPILLI TUFF Chloritic, massive, non-deformed, fine to medium grained, light grey to dark green tuff comprised predominantly of fine well sorted lithic ash (≤ 1-2 mm) fragments in an aphanitic ground mass. Unit contains 1-2% scattered, angular lapilli clasts up to 2 cm (avg. 0.5-1 cm) which are typically light grey to buff coloured, very fine grained trachyte. Displays patchy strong magnetics. Lower contact is very sharp, irregular displaying interfingering with sediments. 4.90 Fault slip @ 20° tca. Chlorite + ankerite ± calcite and 1-2 cm of penetrative ankerite staining in wall rock. 6.50 - 7.50 Weak wispy bedding developed @ 5-10° tca. 20.40 - 20.70 0.5 cm wide chlorite + sericite + ankerite slip @ 30° tca. Wall rock displays moderate to strong ankerite staining. 										
20.90	23.10	SILTSTONE/MUDSTONE Massive to finely bedded, dark green aphanitic siltstone with minor light green mudstone beds up to 2-3 cm wide. Beds are typically disrupted by small micro-faults and frequently display convoluted bedding. Bedding @ 35° tca. Lower contact is sharp, regular bedding contact.										
23.10	51.00	LAPILLI TUFF Massive, medium grained dark grey to green heterolithic lapilli tuff. Comprised of 5-7% angular lapilli clasts up to 1-2 cm (avg. 0.5 cm) in a fine grained ash matrix. Clasts are predominantly light grey to buff, generally fine grained trachyte with lesser amounts of dark green aphani tic volcanics. Patchy strong magnetics.										
		 31.05 - 31.15 Fault @ 60° tca. Sericite + chlorite + quartz ± ankerite. Sharp sericite + chlorite slip planes with 5% interstitial fragmented quartz within a sericitic + ankeritic matrix. Non-mineralized. 35.90 - 36.10 Fault @ 60° tca. Chlorite + sericite ± quartz + ankerite. Strong ankeritic staining within moderately foliated sericitized tuff. Contains 10% irregular chlorite ± quartz slips/stringers which blfurcate into small breccia veinlets. 										

HOLE: AK-92-39

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INTE	RVAL	DESCRIPTION		· · · · · · · · · · · · · · · · · · ·		SAN	IPLE		····	AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au, Check
		 40.80 - 51.00 Intercalated zone. Massive, undeformed and unaltered lapilli tuff as above intercalated with dark green aphanitic siltstone beds from 2-3 cm to 1.0 m wide. Contacts are very sharp, irregular and often display abrupt interfingering. Bedding variable from 10-40° tca. 51.00 Lapilli tuff gives way to predominantly sedimentary units. 	· · · · · · · · · · · · · · · · · · ·								
51.00	57.40	 SILTSTONE/MUDSTONE Chloritic, 35% very finely bedded yellow-green aphanitic mudstone and 65% dark green siltstone gives unit distinctive banded appearance. Bedding ranges from a few mm to 2-3 cm wide and typically displays soft sediment features such as slumping, flame structures and convoluted bedding. Bedding varies from 0-30° tca. Lower contact sharp @ 30° tca. 53.00 - 57.00 A prominent tight chloritic slip fracture running sub-parallel tca. 									
57.40	62.80	GRAYWACKE Massive, fine grained, medium green graywacke comprised of approximately 60% quartz and 40% lithics in an aphanitic groundmass. Unit contains a weak pervasive sericite spotting, 1-2%, as well as patchy disseminated pyrite.									
62.80	78.00	LAPILLI TUFF Massive, medium grained, grey-green heterolithic lapilli tuff. Comprised of 5-15% angular trachyte clasts from 0.5-5 cm in size (avg. 1 cm) within a very fine grained ash matrix. Clasts are 75% predominantly light grey, fine grained to porphyritic trachyte. Remaining clasts are dark green to brown generally very fine grained. Patchy weak magnetics. Unit is partly intercalated with narrow siltstone horizons up to 50 cm wide @ 10-25° tca.			·						
78.00	82.90	SILTSTONE/MUDSTONE/LAPILLI TUFF Chloritic, massive, undeformed, unaltered. Comprised of 85% dark green aphanitic siltstone, 10% yellow-green mudstone and 5% lapilli tuff. Units are intercalated with each other with narrow grey-green lapilli tuff horizons up to 15 cm wide bounded by aphanitic siltstone. Bedding @ 25° tca.									

HOLE: AK-92-39

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INTE	RVAL	DESCRIPTION	SAMPLE							ASSAYS		
FROM	то		No.	From	То	Length	%Rec	%Py 9	6QV	%Ser	Au, g/t	Au,Check
		Lapilli tuff horizons are comprised of 5-10% light grey to buff angular trachyte in a dark green ash graywacke matrix. In places a notable amount of quartz, jasper and lithics are evident within matrix. Obvious mixing.										
	82.90	E. O. H. Broken core barrel left in hole. Casing pulled.										
				•								
								-				

HOLE: AK-92-39A

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PROPERTY TOWNSHIP CLAIM No.	Amalgamated Kirkland Teck L 491650, L 491651	DATE LOGGED LOGGED BY DRILLED BY	January 26, 1992 - Mark Masson Heath & Sherwood	February 8, 1992	EASTING NORTHING ELEVATION	7999.0 10378.7 344.4	Depth	Method	Azimuth	Dip
STARTED COMPLETED	January 25, 1992 February 7, 1992	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake War B.M.C.I. Sperry Sun	ehouse	COLLAR SURVEY	Northland Technical 609.95 metres	Note:	See table at	end of sumn	ary log
PURPOSE	To test "102" / "103" stru	cture at 500 m. level.		1.R	CORE SILE	NQ				
COMMENTS	"103" structure @ 457.40 "102" structure @ 536.25) - 488.00, 30.6 m. ; - 536.55, 0.3 m.	SIGNED BY	(W. Benham)						

	SUM	IMARY LOG		A	SSAY SUMM	IARY
INTERVAL From To	DESCRIPTION	INTERVAL From To	DESCRIPTION	INTERVAL From To	LENGTH in metres	AVERAGE Au g/t
0.00 2.70 2.70 20.50 20.50 22.40 22.40 31.70 31.70 38.00 34.00 44.00 44.00 49.00 49.00 57.80 74.20 78.20 78.20 105.80 105.80 159.30 159.30 167.20 167.20 216.00 216.00 220.25 225.30 237.65 237.65 242.40	OVERBURDEN ASH TUFF 20.10 - 20.50 Fault @ 40° tca. SILTSTONE LAPILLI TUFF ASH TUFF SILTSTONE/LAPILLI TUFF LAPILLI TUFF GRAYWACKE SILTSTONE/MUDSTONE/GRAYWACKE LAPILLI TUFF SILTSTONE/MUDSTONE/GRAYWACKE LAPILLI TUFF SILTSTONE/GRAYWACKE/LAPILLI TUFF 163.75 - 164.00 Fault @ 10° tca. LAPILLI TUFF 189.25 Fault @ 40° tca. SILTSTONE LAPILLI TUFF SILTSTONE/LAPILLI TUFF GRAYWACKE 242.00 - 242.40 Fault @ 50° tca.	242.40 246.00 246.00 348.90 348.90 353.10 353.10 372.30 372.30 424.20 424.20 426.40 439.40 439.40 439.40 530.00	LAPILLI TUFF GRAYWACKE 329.05 - 329.10 Fault @ 80° tca. SILTSTONE/MUDSTONE/LAPILLI TUFF GRAYWACKE 359.30 - 359.50 Fault @ 15° tca. 372.15 - 372.30 Fault @ 45° tca. LAPILLI TUFF 406.00 Fault @ 70° tca. MUDSTONE/SILTSTONE 424.80 Fault @ 70° tca. GRAYWACKE MUDSTONE 440.00 - 440.45 Shear zone @ 65-70° tca. GRAYWACKE 440.00 - 440.45 Shear zone @ 65-70° tca. GRAYWACKE 457.45 - 458.30 Quartz + Pyrite + Visible Gold + Silicified Zone @ 20-40° tca. 469.55 - 473.10 Quartz + albite + pyrite \pm galena vein zone. 1-5% pyrite, 1- 5% quartz. 479.20 - 483.10 Quartz + albite + pyrite \pm galena vein zone.	357.00 359.00 440.00 440.50 453.00 457.40 457.40 488.00 or 457.40 483.10 including 457.40 458.90 458.90 467.00 467.00 469.50 469.50 474.00 474.00 479.20 479.20 483.10 483.10 488.00 488.00 491.00	2.00 0.50 4.40 30.60 25.70 1.50 8.10 2.50 4.50 5.20 3.90 4.90 3.00	0.17 0.39 0.27 5.83 6.74 69.20 0.61 1.54 6.75 1.35 5.95 1.05 0.23

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TOWNSHIP	Amalgamated Kirkland Teck	DATE LOGGED LOGGED BY	January 26, 1992 - February 8, 1992 Mark Masson	EASTING NORTHING	7999.0 10378.7	Depth	Method	Azimuth	Dip
STARTED COMPLETED	January 25, 1992 February 7, 1992	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake Warehouse B.M.C.I. Sperry Sun	ELEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	344.4 Northland Technical 609.95 metres NO	Note:	See table at for downhole	end of sumn surveys	ary log
PURPOSE	To test "102" / "103" stru	icture at 500 m. level.							
COMMENTS	"103" structure @ 457.40 "102" structure @ 536.25) - 488.00, 30.6 m. 5 - 536.55, 0.3 m.	SIGNED BY (W. Benham)					

	SUM	MARY LOG		ASSAY SUMMARY				
INTERVAL From To	DESCRIPTION	INTERVAL From To	DESCRIPTION	INTERVAL From To	LENGTH in metres	AVERAGE Au g/t		
530.00 535.10 535.10 539.75 539.75 543.85 543.85 550.60 550.60 609.95	CONGLOMERATE MUDSTONE/SILTSTONE 535.45 - 535.60 Fault @ 55° tca. 536.25 - 536.55 Sheared quartz + pyrite vein @ 80° tca. CONGLOMERATE MUDSTONE GRAYWACKE/CONGLOMERATE 602.60 - 603.10 Fault @ 30° tca.							
609.95	Е. О. Н.		·					

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PROPERTY TOWNSHIP	Amalgamated Kirkland Teck	DATE LOGGED LOGGED BY	January 26, 1992 - February 8, 1992 Mark Masson	EASTING NORTHING	7999.0 10378.7	Depth	Method	Azimuth	Dip
STARTED COMPLETED	January 25, 1992 February 7, 1992	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Heath & Sherwood Kirkland Lake Warehouse B.M.C.I. Sperry Sun	ELEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	344.4 Northland Technical 609.95 metres NQ	Note:	See table be downhole su	low for all rveys	
PURPOSE	To test "102" / "103" stru	cture at 500 m. level.							
COMMENTS	"103" structure @ 457.40 "102" structure @ 536.25) - 488.00, 30.6 m. 5 - 536.55, 0.3 m.	SIGNED BY (W. Benham)						

				SUM	MARY LOG						A	SSAY S	UMMAR	Y
INTERVAL From To		DESCRI	PTION		INTERVAL From To		DESCRI	IPTION		INTER From	VAL To	LENG in metr	FTH A	VERAGE Au g/t
	Depth	Method	Azimuth	Dip		Depth	Method	Azimuth	Dip	Dept	h	Method	Azimuth	Dip
	Collar	Compass	158	77.5		261.0	Sperry Sun	139	69					
	23.0	Sperry Sun	156	77		305.0	Acid		64					
	68.5 Acid 76			76		343.0	Sperry Sun	136	61					
	71.0	Sperry Sun	148(?)	76		368.0	Acid		61					
	93.0	Sperry Sun	147	75.5		395.0	Sperry Sun	136	61					
	101.0	Sperry Sun	148	74.5		432.0	Acid		60					
	122.0	Acid		74		438.0	Sperry Sun	135	60				1	
	156.0	Sperry Sun	146	72.5		498.0	Sperry Sun	135	59				1	
	183.0	Acid		71		569.0	Sperry Sun	134	57					
	236.5	Sperry Sun	142	70										
	244.0	Acid		70										1

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INTE	RVAL	DESCRIPTION				AS	SAYS					
FROM	то		No.	From	То	Length 4	%Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
0.00	2.70	OVERBURDEN										
2.70	20.50	 ASH TUFF Chloritic, massive to poorly bedded, dark to light grey-green pristine, undeformed ash tuff comprised of 10-15% fine angular sub-rounded lithic clasts, up to 1-2 mm, in a very fine grained ash groundmass. Unit contains 1-2% scattered angular lapilli clasts, up to 2-3 cm, which are light grey or dark green (mafic) and very fine grained. Patchy strong magnetics. 8.00 - 9.00 Unit displays weak bedding @ 10° tca marked by very fine irregular anastomosing bands 1-2 mm wide. 9.20 Fault @ 20° tca. Chlorite + ankerite. Open vuggy chloritic slip with strong ankeritic staining. 20.10 - 20.50 Fault @ 40 tca. Chlorite + sericite + ankerite + quartz + calcite. Strongly foliated, sericitized tuff pseudo-brecciated by chlorite + quartz + calcite slips and stringers up to 2-3 mm wide. Section has strong ankeritic staining and is quite soft. Strong cross-fault. 										
20.50	22.40	SILTSTONE Chloritic, aphanitic, dark green siltstone with poorly developed internal bedding. In part intercalated with narrow lapilli tuff horizons, up to 20 cm wide, which show bedding contacts @ $5-10^{\circ}$ tca. Lower contact is very sharp but irregular @ 75° tca.										
22.40	31.70	 IAPILLI TUFF Chloritic, massive, grey-green to grey-brown, weakly hematitic, heterolithic lapilli tuff comprised of 5-15% angular lapilli clasts, 0.5-4 cm, in a fine lithic ash matrix. Clasts consist of light grey-buff trachyte and red-pink spotted trachyte in roughly equal proportions with lesser amounts of light green aphanitic volcanics. Patchy strong magnetics. 31.70 Fault @ 20° tca. Chlorite + ankerite + quartz ± calcite. cm wide pink-white quartz calcite vein bounded by sharp chloritic slip planes. 										
31.70	38.00	ASH TUFF Massive, fine grained light green ash with very minor scattered lapilli clasts. Weak pervasive sericitization but otherwise very pristine. Pervasive strong magnetics due to very finely disseminated magnetite.	2055 2056	34.00 34.50	34.50 35.00	0.50 0.50	100				0.01 0.01	

HOLE: AK-92-39A

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INTE	RVAL	DESCRIPTION				AS	SAYS				
FROM	TO		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		 35.50 - 36.00 Dirty green-brown mottled texture with a moderate degree of sericitization evident. 36.00 - 36.45 Fault zone, chlorite + sericite + ankerite + quartz ± calcite. Moderately sericitized and foliated tuff cut by numerous chlorite + quartz veinlets @ 60° tca and strong tight chlorite + sericite slips up to 3 mm wide. Entire section has strong ankeritic stain. 	2057 2058 2059 2060 2061	35.00 35.50 36.00 36.50 37.00	35.50 36.00 36.50 37.00 38.00	0.50 0.50 0.50 0.50 1.00		10	30	0.01 0.01 0.01 0.01 NIL	
38.00	44.00	SILTSTONE/LAPILLI TUFF Chloritic, massive to finely laminated dark green, aphanitic siltstone intercalated with dark grey-green lapilli tuff horizons. Units display intimate interfingering with highly irregular contacts. Tuff horizons vary from 1-2 cm to 15-20 cm wide. Pristine, unaltered, undeformed. Lower contact gradational.					:				
44.00	49.00	LAPILLI TUFF Chloritic, massive, medium green tuff comprised of 5-10% angular light green to grey trachyte clasts, avg. 0.5 cm, in a fine grained ash matrix. Non- magnetic, undeformed. Lower contact sharp @ 75° tca.									
49.00	57.80	GRAYWACKE Massive, fine grained light green graywacke comprised of 30-40% quartz and 60-70% lithics which are quite well rounded (jasperoidal). Unit contains 1% scattered angular mudstone clasts often as irregular layers or pebble bands. Weak pervasive spotty sericite and minor disseminated pyrite.									
57.80	74.20	SILTSTONE/MUDSTONE/GRAYWACKE Interbedded dark green siltstone with light green mudstone layers up to 10 cm wide. Bedding is somewhat irregular and wispy @ 5-15° tca. Pristine. In part also intercalated with minor graywacke horizons.					-				
74.20	78.20	71.00 - 72.80 Irregular chlorite + sericite slips sub-parallel tca. LAPILLI TUFF Dark green massive lapilli tuff with 5-10% angular light grey to buff trachyte clasts to 3 cm. Contacts interfingered.									

HOLE: AK-92-39A

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INTE	RVAL	DESCRIPTION				SA	MPLE			AS	SAYS
FROM	ТО		No.	From	То	Length %Rec	%Py %	QV 9	%Ser	Au, g/t	Au,Check
78.20	105.80	 SILTSTONE/MUDSTONE/GRAYWACKE Interbedded dark green siltstone with light green mudstone layers up to 10 cm wide. Bedding is somewhat irregular and wispy @ 5-15° tca. Pristine. In part also intercalated with minor graywacke horizons. 89.00 Dominantly dark grey to black finely laminated siltstone with very little mudstone component. Bedding swings from 5-15° tca @ 60.0 m to 30° tca @ 90.0 m. 105.70 - 105.80 Fault @ 40° tca. Sericite + chlorite + quartz ± albite. 3 cm wide sericite + chlorite shear with 5% boudinaged and brecciated, grey-white quartz ± albite pods. Marks contact with tuffs. 									
105.80	159.30	 1APILLI TUFF Chloritic, massive, medium to dark green heterolithic tuff comprised of 5-10% angular trachyte clasts in a fine grained dirty ash matrix which appears to contain 2-3% very fine light grey altered crystals (possible amphibole). Clasts consist of; 1) 70% light grey to brown trachyte 2) 20% red-pink trachyte and 3) 10% dark green mafic clasts. Clasts range from 0.5 cm to 3-4 cm (avg. 1 cm). Moderate pervasive magnetics. This tuff has a distinctive mottled appearance and frequently clast boundaries are hazy and indistinct from 106 → 125.6 m. Lower contact is a sharp bedding contact @ 35° tca. 107.35 - 107.60 Fault @ 25° tca. Sericite + chlorite + quartz ± calcite. Moderately strong cross fault comprised of white-pink fractured quartz ± calcite with strong tight interstitial sericitic slip planes up to 3 mm wide. 121.55 - 122.00 Fault @ 35° tca. Sericite + chlorite + quartz ± albite. Weak to moderately foliated sericitized tuff cut by narrow (≤ 0.5 cm) white-pink quartz veinlets with sharp slip walls. 147.20 3 cm wide quartz + chlorite vein with angular brecciated wall rock fragments up to 1 cm in the chloritic vein material. 147.00 - 147.50 Small series of these chlorite breccia veinlets. 									

HOLE: AK-92-39A

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INTE	RVAL	DESCRIPTION					SAN	IPLE			AS	SAYS
FROM	то		No.	From	То	Length %	6Rec	%Py %	QV 9	6Ser	Au, g/t	Au.Check
159.30	167.20	 SILTSTONE/GRAYWACKE/LAPILLI TUFF Dark green aphanitic, chloritic, massive to finely laminated siltstone intercalated with narrow graywacke and lapilli tuff horizons. Graywacke and lapilli tuff beds range from 0.5-25 cm wide and display irregular interfingering. Proximal to these low angle shears, units display a weak to moderate patchy pervasive sericitization. Lower contact is a tight sericite + chlorite shear, 2-3 cm wide, @ 15-20° tca. 160.40 - 160.80 Fault @ 20° tca. Sericite + chlorite + calcite. Sharp tight sericite (± talc) + chlorite slips with smeared calcite on slip faces. 163.75 - 164.00 Fault @ 10° tca. Sericite + chlorite + quartz + calcite. Strong tight muddy slip with 1-2 cm, milk-white to grey quartz vein which has strong internal sericite slips. 				X						
167.20	200.00	 LAPILLI TUFF Chloritic ± sericitic lapilli tuff, massive to weakly foliated @ 10-20° tca down to 172.80 m due to narrow irregular sericitic slips associated with above cross-faulting. Dark grey-green heterolithic tuff comprised of 5-15% angular trachyte clasts from 3 mm - 4 cm (avg. 1 cm) in a dark fine grained ash matrix. Clasts consist of; 1) 60% red-pink trachyte, often porphyritic 2) 25% light grey-green aphanitic trachyte and 3) 15% dark green to black aphanitic volcanics. Displays pervasive moderate to strong magnetics. Lower contact is gradational over 3-4 metres. 187.30 - 188.30 Siltstone, dark green chloritic aphanitic siltstone with sharp bedding contacts @ 60° tca. 189.25 Fault @ 40° tca. Chlorite + sericite. Strong muddy chloritic slip 2-3 mm wide. 189.30 - 191.00 Tuff is fractured by hairline chloritic aligns and 										
200.00	216.00	groundmass is moderately sericitized. LAPILLI TUFF Chloritic, massive, medium grey-green lapilli tuff comprised predominantly of light grey angular trachyte clasts from 3 mm - 4 cm (avg. 0.5-1 cm). These clasts comprise 80-90% of the clast types present which differs from previous lapilli tuff. Patchy weak to moderate magnetics and moderate pervasive CaCo3 in groundmass. Lower contact sharp @ 50° tca.										

HOLE: AK-92-39A

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INTE	RVAL	DESCRIPTION				AS	SAYS				
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
216.00	220.25	SILTSTONE Chloritic, massive to finely laminated, dark green aphanitic siltstone with very minor intercalated lapilli tuff horizons up to 20 cm wide. Undeformed, unaltered. Bedding @ 65° tca. Lower contact sharp @ 70° tca.									
220.25	225.30	LAPILLI TUFF Chloritic, massive, dark green heterolithic lapilli tuff with 5-10% angular lapilli clasts in a fine ash matrix. Predominant clast type is 75-80% light grey, fine grained trachyte. Non-magnetic. Lower contact is a sharp, tight sericitic slip @ 35° tca.									
225.30	237.65	SILTSTONE/LAPILLI TUFF Chloritic, massive to finely laminated @ 45° tca. Dark to medium green, aphanitic, undeformed, unaltered.									
		 Fault @ 30° tca., 2-3 mm wide strong chlorite + sericite slip. 231.50 - 237.65 Unit becomes intercalated with massive lapilli tuff horizons up to 1 m wide which display sharp interfingering with the sediments. 	2062 2063	236.00 237.00	237.00 237.65	1.00 0.65				0.01 0.01	
237.65	242.40	GRAYWACKE Chloritic, massive, light to dark green, very fine grained graywacke to quartz arenite. Unit carries trace disseminated pyrite throughout and is cut by 2-3% milk-white to grey barren quartz \pm albite veins up to 30 cm wide. Veins are generally very irregular and frequently contain fragments of sericitized graywacke fragments.									
		 238.30 - 238.80 Quartz ± albite + sericite vein. Very irregular, barren patchy quartz flooding with light green sericitized graywacke at vein contacts. 239.95 - 240.50 Quartz ± albite + sericite vein. Barren, late quartz. 	2064 2065 2066 2067 2068 2069 2070 2070	237.65 238.30 238.90 239.40 239.90 240.50 241.00	238.30 238.90 239.40 239.90 240.50 241.00 241.50	0.65 0.60 0.50 0.50 0.60 0.50 0.50	Tr. Tr. Tr. Tr. Tr. Tr.	45 Tr. 2-3 40 Tr. 1-2	15 5 10 5-10 Tr. Tr. Tr.	0.01 0.01 0.01 0.01 0.01 0.01 NIL	
		242.00 - 242.40 Fault @ 50° tca. Sericite + chlorite + quartz + albite. Strong fault zone comprised of 1-3 cm wide chlorite + sericite + quartz, often with gouge within highly foliated sericitized graywacke/tuff.	2072	241.50	242.40	0.40	Ir. Tr.	1-2 5	1r. 30-40	0.01 0.01	

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INTE	RVAL	DESCRIPTION	l			SA	MPLE				AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%Q1	/ %Ser	,	Au, g/t	Au.Check
242.40	246.00	LAPILLI TUFF Massive, grey-green to red-brown heterolithic lapilli tuff with 5-10% angular clasts which are pink-red, light grey to buff and dark green volcanics. Unit is moderately fractured by narrow, 0.5-3 mm, quartz + chlorite, anastomosing stringers. Non-mineralized, non-magnetic.	2073 2074 2075 2076 2077 2078 2079	242.40 243.00 243.50 244.00 244.50 245.00 245.50	243.00 243.50 244.00 244.50 245.00 245.50 245.50	0.60 0.50 0.50 0.50 0.50 0.50 0.50 0.80	2-3 2-3 Tr 1 1 Tr	2-	5 5 3 5 3		NIL 0.01 0.01 0.01 NIL 0.01	
246.00	348.90	GRAYWACKE Massive, very fine grained, light to dark green, well sorted very clean graywacke to quartz arenite. Unit is cut by 1-2% barren white quartz veinlets at all angles tca. Lower contact of unit is a sharp strong sericite slip @ 65° tca with a 5 cm wide barren quartz breccia vein with wall rock fragments to 5 mm.										
		246.30 - 246.40 Fault @ 70° tca. Sericite + chlorite + quartz. Sharp strong sericitic slip planes with interstitial barren quartz with intersel conjuits automa	2080	246.30	246.75	0.45		5-'	7 40		0.01	
		246.40 - 247.20 Yellow-green aphanitic mudstone with strong internal chlorite fracturing (pseudo-brecciated) and 10% barren, irregular quartz + scricite veining.	2081 2082 2083 2084	246.75 247.20 248.00 248.50	247.20 248.00 248.50 249.00	0.45 0.80 0.50 0.50	Tr	1(1-2) 40 2 Tr. 1 Tr. 7 Tr		0.01 0.01 0.01	
	2	249.30 - 269.00 Unit is cut by 3-4 generations of narrow (\$ 1 cm) quartz and quartz + chlorite veinlets which frequently display light yellow-green sericite alteration halos. Oldest set appears to be a system of hairline to 2 mm wide quartz + chlorite veinlets (quartz cores and chlorite boundaries) @ 10-20° tca with small braided stringers off main set. This set may carry fine grained sulphides and is cross cut by at least two sets of harren milk-white quartz yeins up to 1	2085 2086 2087 2088 2089	249.00 249.50 250.00 250.50 251.00	249.50 250.00 250.50 251.00 251.50	0.50 0.50 0.50 0.50 0.50		2-: 2-: 2-: 1-:	3 5 3 5-7 3 5-7 2 3-5 1 2-3		0.01 0.01 NIL 0.01 0.01	
		 251.80 Fault slip @ 30° tca. Fault slip @ 30° tca. Sharp chlorite slip with a 0.5 cm barren quartz vein on slip wall. Moderate sericite alteration proximal to fault. 	2090 2091 2092 2093 2094 2095 2096 2097 2098	251.50 252.10 253.00 253.50 254.00 254.50 255.00 255.75 256.50	252.10 253.00 253.50 254.00 254.50 255.75 255.75 256.50 257.00	0.60 0.90 0.50 0.50 0.50 0.50 0.75 0.75 0.50	Tr Tr Tr Tr	2-1 Tr . 1-1 . 1-1 . 3-1 . 3-1	3 5-10 1 Tr. 2 3-5 2 3-5 1 2-3 5 5-7 3 1-2 4 1-2	Chi.	0.01 0.02 0.01 0.01 0.01 NIL NIL 0.01 0.02 0.01	

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INTE	RVAL	DESCRIPTION				SAN	IPLE			AS	SAYS
FROM	TO		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au, Check
		261.85 A 1-2 mm wide quartz + pyrite stringer @ 30° tca.	2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120	257.00 257.50 258.00 259.00 259.50 260.00 260.50 261.50 262.00 262.50 263.00 263.50 264.00 264.50 265.50 265.50 266.00 266.50 266.00 268.00	257.50 258.00 258.50 259.00 260.50 261.00 261.50 262.00 262.50 263.00 263.50 264.50 264.50 265.50 265.50 266.00 265.50 266.00 266.50 266.00 266.00 268.00 269.00	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	Tr. Tr. Tr. Tr. Tr. Tr.	Tr. Tr. 1-2 2-3 3-5 2-3 1-2 2-3 1-2 2-3 1-2 2-3 1-2 2-3 1-2 2-3 1-2 2-3 1-2 2-3 1-2 2-3 1-2 2-3 1-2 2-3 1-2 2-3 1-2 2-3	5-7 2-3 2-3 3-5 5-7 5-7 5-7 1-2 3-5 Tr. 5-10 1-2 1-2 2-3 1-2 1-2 1-2 1-2 3-5 1-2 3-5 1-2 3-5 1-2 3-5 1-2 3-5 1-2 3-5 1-2 3-5 1-2 3-5 1-2 3-5 1-2 3-5 1-2 3-5 1-2 3-5 1-2 3-5 1-2 3-5 1-2 3-5 1-2 3-5 1-2 3-5 1-2 1-2 3-5 1-2 1-2 1-2 1-2 1-2 1-2 1-2 1-2	0.01 0.01 0.02 0.01 NIL 0.01 0.01 0.01 0.01 0.02 0.01 0.01 0.01 0.01 NIL 0.01 NIL 0.01 NIL 0.01 NIL 0.01 0.02 0.01 0.01 0.02 0.01 0.01 0.02 0.01 0.01 0.02 0.01 0.01 0.02 0.01 0.01 0.02 0.01 NIL 0.01 0.01 0.02 0.01 NIL 0.01 0.01 0.01 0.02 0.01 NIL 0.01 0.01 0.01 0.02 0.01 0.01 0.02 0.01 0.01 0.02 0.01 0.01 0.02 0.01 0.01 0.02 0.01 0.01 0.02 0.01 0.01 0.02 0.01 0.01 0.02 0.01 0.01 0.02 0.01 0.01 0.02 0.01 0.01 0.02 0.01 0.01 0.02 0.01 0.01 0.02 0.01 0.01 0.01 0.01 0.01 0.02 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 NIL	
		 with smeared quartz + calcite. Weak narrow, 1-3 mm wide, pyrite seams/beds @ 60° tca. 290.00 - 330.00 Unit has 1-2% scattered subrounded to well rounded pebbles of mudstone, jasper and minor lithics, pebbly grawwacke to polymicitic pebble consilomerate 									
		 303.10 Fault slip @ 35° tca. Tight, 1-2 mm wide, strong sericite slip with moderate sericitization of wall rock up to 10 cm from slip. 									
		304.00 Fault slip @ 20° tca. Chlorite + sericite, sharp (2 mm) tight chlorite + sericite slip with chloritic stringers fracturing wall rock.									
		 306.00 - 309.80 Irregular anastomosing chlorite + sericite ± quartz slip up to 1 cm wide, oscillating down core @ 5° tca. 313.75 - 314.00 Shear zone @ 60° tca. Sericite + chlorite + quartz. Moderately well foliated sericitized graywacke with strong sharp sericite slips. Intruded by 5-10% barren white to pink quartz veinlets. Non-mineralized. 									

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INTE	RVAL	DESCRIPTION	SAMPLE No. From To Length %Rec %Py %OV %Ser									SAYS
FROM	то		No.	From	To	Length 9	%Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		 320.80 Fault slip @ 20° tca, strong sericite + gouge slip with 2 cm wide, late barren quartz vein. 329.05 - 329.10 Fault @ 80° tca. Strong sericite shear with 30% barren white to pink quartz ± calcite. Moderate gouge development. 339.80 Fault @ 25° tca. Sericite + quartz + pyrite. 3 cm wide, sericitic shear with a 1 cm wide, blue-grey to white, quartz vein which has irregular internal sericite suturing with 1-2 % medium grained, sub to euhedral pyrite on seams. 341.50 Fault slip @ 30° tca. Sericite + quartz 2 cm wide barren grey-white quartz vein on strong sharp sericite slips. 344.30 - 344.55 Altered sericitized graywacke fractured to pseudo-brecciated by irregular quartz + chlorite ± pyrite veins. Series of ladder- type quartz + chlorite veinlets with trace blebby pyrite @ 25-30° tca (1-4 mm wide) cross cuts earlier set of barren milk-white veins at right angles. 	2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2135 2136	338.00 339.00 339.60 340.00 340.50 341.00 341.60 342.10 343.00 344.00 344.60 345.60 346.10 347.00 348.00 348.50	339.00 339.60 340.00 340.50 341.00 341.60 342.10 343.00 344.00 344.60 345.60 346.10 345.60 346.10 345.60 348.90	1.00 0.60 0.40 0.50 0.50 0.50 0.50 0.90 1.00 0.50 0.90 1.00 0.50 0.90 1.00 0.50 0.40	90	Tr. Tr. Tr. Tr.	1-2 Tr. Tr. 2-3 .Tr. 2	1-2 Tr. Tr. Tr. Tr. Tr. Tr. Tr. 5	0.01 0.01 0.03 0.02 0.01 0.02 0.02 0.01 0.01 0.01 0.01	
348.90 353.10	353.10 372.30	SILTSTONE/MUDSTONE/LAPILLI TUFF Intimately intercalated siltstone, mudstone and lapilli tuff with very sharp and highly irregular bedding contacts at roughly 30-50° tca. All units are moderately pervasively sericitized and lapilli tuff displays strong internal sericitic foliation and clast elongation @ 30-40° tca. Lapilli tuff has a quite distinctive clast component which consists of angular mudstone clasts, up to 5 cm wide, moderately well rounded quartz pebbles and dark angular mafic lapilli clasts. Mudstone/siltstone are finely laminated with irregular convoluted bedding and are yellow-green to dark grey respectfully. GRAYWACKE Massive to moderately foliated graywacke to pebbly graywacke with 1-2%	2137 2138 2139 2140 2141 2142	348.90 349.90 350.50 351.00 351.70 352.50	349.90 350.50 351.00 351.70 352.50 353.10	1.00 0.60 0.50 0.70 0.80 0.60		Tr. Tr.	Tr. Tr. Tr. Tr.	10 5-10 5-10 5-10 10-15 10-15	0.01 0.01 0.01 NIL 0.01 0.01	
		 Massive to moderately tollated graywacke to pebbly graywacke with 1-2% scattered pebble clasts of mudstone quartz, volcanics and jasper. Matrix is moderately to pervasively sericitized and has trace disseminated pyrite. 353.10 - 353.45 Fault zone @ 60° tca. Sericite + chlorite + quartz. Strongly foliated sericitized graywacke with sharp sericite + mud gouge fault slips. Section carries 10-15% irregular grey-white quartz veins and pods up to 4-5 cm wide. 	2143 2144 2145 2146	353.10 353.60 354.30 355.00	353.60 354.30 355.00 356.00	0.50 0.70 0.70 1.00		Tr. Tr. Tr.	10-15 Tr.	40 15-20 10-15 10-15	0.01 0.01 NIL 0.01	

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INTE	RVAL	DESCRIPTION				SAM	IPLE			AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au.Check
		Secondary to fault are fine dark green chlorite + quartz + pyrite stringers and fractures @ 30° tca. 358.65 - 358.85 Fault breccia @ 30° tca. Chlorite + quartz. Angular grey- white quartz breccia fragments (10%) in a very fine grained dark green chlorite + quartz groundmass.	2147 2148 2149 2150	356.00 357.00 358.00 358.50	357.00 358.00 358.50 359.00	1.00 1.00 0.50 0.50	Tr. Tr. Tr. Tr.	Tr. Tr. 5	10-15 15-20 15-20 10-15	0.01 0.19 0.08 0.20	
		359.30 - 359.50 Fault breccia @ 15° tca. Chlorite + quartz + pyrite. Strong fault breccia with chloritic gouge on walls. 10-15% angular quartz breccia fragments in a very fine chlorite ± quartz groundmass. 1% blebby smeared pyrite on chloritic slip planes.	2151	359.00	359.50	0.50	1	5	10-15	NIL	
		359.60 - 359.80 "Crack & seal" in-situ brecciation of graywacke by irregular chlorite ± quartz stringers, up to 1 cm wide, with trace pyrite.	2152	359.50	360.00	0.50	Tr.	1-2	5-10	0.01	
		 359.80 - 372.15 Sporadic fine chlorite ± pyrite stringers and fractures which are 1-3 mm wide and frequently display weak sericitized alteration halos up to 0.5-1 cm from fractures. 372.15 - 372.30 Fault contact @ 45° tca. Chlorite + sericite + quartz + pyrite. 1 cm wide brecciated quartz vein material within dark green chloritic groundmass. Slip walls are sharp and tight with moderate gouge development. Carries 1% fine grained pyrite. Marks contacts with volcanics. 	2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168	360.00 360.50 361.00 362.00 363.00 364.00 366.00 366.00 366.00 366.00 366.00 366.00 369.00 370.00 371.00 372.00	360.50 361.00 361.50 362.00 363.00 364.00 366.50 366.50 367.00 368.00 369.00 370.00 371.00 372.00 372.50	0.50 0.50 0.50 1.00 1.00 1.00 1.00 1.00	Tr. Tr. Tr. Tr. Tr. 1	2-3 3-5 1 Tr. Tr. Tr. Tr. Tr. 1-2	5-10 10-15 5-10 5-10 5-10 10-15 5-10 5-10	0.02 0.03 0.04 0.03 0.01 NIL 0.01 0.01 0.01 0.02 0.03 0.01 0.01 0.01 0.03 0.11	
372.30	424.20	LAPILLI TUFF Scricitized, bleached, massive to moderately foliated lapilli tuff with clast elongation @ 45° tca. Groundmass is light grey-green to brown, very fine grained to aphanitic with 2-3% black subhedral crystals to 1 mm (amphibole?). Groundmass is moderately pervasively sericitized. Clasts									

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INTE	RVAL	DESCRIPTION				AS	SAYS				
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		 comprise ≈ 5% of unit and consists of black spotted to dark grey aphanitic trachyte. Frequently clast boundaries are hazy and diffuse, apparently due to groundmass alteration. Unit has 2-3% black hairline chlorite slips @ 55° tca and fine chloritic cracks which appear to carry very finely disseminated pyrite. Lower contact of unit is a sharp intact bedding contact @ 55° tca. 376.20 - 376.80 Sericite shear @ 25° tca. Well foliated sericitized tuff, 25° tca, cut by a series of strong, tight chlorite + quartz slips @ 40° tca which carry trace smeared pyrite. 395.20 Fault @ 45° tca. Chlorite + sericite + quartz + calcite. Open, vuggy, 2 cm wide, shear with minor euhedral pyrite ± calcite in small cavities. 406.00 Fault @ 70° tca. Sericite + quartz. 1 cm wide strong sericite schist with sharp muddy contacts. 	2169 2170 2171 2172 2173 2174 2175 2176 2177 2178 2179 2180	372.50 373.00 374.00 374.60 375.10 376.00 377.00 378.00 379.00 380.00 381.00 381.00 382.00	373.00 374.00 374.60 375.10 376.00 377.00 378.00 379.00 380.00 380.00 381.00 382.00 383.00	0.50 1.00 0.60 0.50 0.90 1.00 1.00 1.00 1.00 1.00 1.00	Tr. Tr. Tr. Tr. Tr.	Tr. Tr. 2 Tr. 1-2 1-2 Tr. Tr. Tr. Tr. Tr. Tr.	10-15 10-15 10-15 10-15 10-15 10-15 10-15 10-15 10-15 10-15 10-15	0.07 0.02 0.05 0.03 0.03 0.03 0.03 0.04 0.01 0.01 NIL 0.01	
424.20	426.40	MUDSTONE/SILTSTONEAphanitic yellow-green mudstone finely laminated @ 55° tca and dark grey siltstone. Beds are somewhat irregular and convoluted and vary from 1-2 mm to 5-10 cm wide. Lower contact sharp, regular bedding contact.424.80Fault @ 70° tca. Sericite + quartz. Strong sharp sericite mud slips with a 3 cm wide barren white quartz vein with strong internal sericite suturing.									
426.40	439.40	 GRAYWACKE Massive, fine grained, light to medium grey-green. Well sorted, very clean and comprised of 60% quartz and 30-40% lithics (\$ 1 mm). In places weak bedding seems to be defined by 1-2 mm wide, discontinuous pyrite seams @ 70-80° tca. Lower contact is sharp, somewhat irregular and interfingered @ 70° tca. 430.10 - 430.40 1.5-2 cm wide albite + quartz vein @ 35° tca with trace - 0.5% galena crystals, up to 1.5 mm, trace pyrite and chalcopyrite. The vein is fractured and faulted by 0.5-1 mm dark green-black chlorite veinlets @ 40-80° tca. 	11905 11906 11907 11908 2181	429.00 430.00 430.50 431.50 432.50	430.00 430.50 431.50 432.50 433.00	1.00 0.50 1.00 1.00 0.50	Tr. Tr.	Tr. 2-3		NIL 0.01 0.01 0.01 0.03	
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INTE	RVAL	DESCRIPTION	SAMPLE						₩₩ <u>₩</u> ₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩	AS	SAYS	
FROM	то		No.	From	То	Length	%Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		 433.40 Quartz + albite vein @ 40° tca. 2 cm wide milk-white vein on a sharp sericitic slip. Internally the vein has some minor fracturing with blue-grey quartz ± chlorite infillings which carry trace pyrite. 434.10 - 434.85 Mudstone, massive to finely laminated @ 80° tca, 	2182 2183 2184	433.00 433.50 434.10	433.50 434.10 434.90	0.50 0.60 0.80		Tr. Tr. Tr.	1	Tr.	0.01 0.01 0.01	
		aphanitic yellow-green, sericitic, mudstone horizon with sharp contacts. Contains 1-2% white to blue-grey quartz veinlets, 1 mm-1 cm wide, which carry trace pyrite (± galena?)	2185 2186 2187 2188 2189 2190 2191 2192	434.90 435.50 436.00 436.50 437.00 437.50 438.00 438.90	435.50 436.00 436.50 437.00 437.50 438.00 438.90 439.40	0.60 0.50 0.50 0.50 0.50 0.50 0.50 0.90		Tr. Tr. Tr. Tr. Tr. Tr.	Tr. Tr. Tr. Tr. Tr. Tr.		0.01 0.01 0.01 0.01 0.01 NIL NIL	
439.40	444.40	 MUDSTONE Yellow-green, soft sericitic aphanitic mudstone with finely interbedded siltstone. Bedding ranges from 1-2 mm to 5-10 cm wide. Well bedded @ 75° tca. Mudstones are cut by 1-2% irregular milk-white quartz + albite veins which frequently have very fine grained blue-grey spots and stringers which appear to be fine quartz + pyrite ± galena. i.e. @ 441.70 - 442.80. 440.00 - 440.15 White to grey to grey-brown brecciated quartz + wall rock material with 1-2% very finely disseminated pyrite in groundmass. 440.00 - 440.45 Shear zone @ 65-70°. Sericite + quartz + pyrite. Strongly foliated to schistose, sericitic mudstone with strong sharp sericitic gouge slip planes. 	2193 2194 2195 2196 2197 2198 2199 2200	439.40 440.00 440.50 441.00 441.70 442.20 443.00 443.70	440.00 440.50 441.00 441.70 442.20 443.00 443.70 444.40	0.60 0.50 0.50 0.70 0.50 0.80 0.70 0.70		Tr. Tr1 Tr. Tr. 1	1 15 1-2 5	50 50 +	0.03 0.39 0.03 0.02 0.05 0.01 NIL 0.01	
444.40	530.00	GRAYWACKE Massive, very fine grained, non-deformed, medium grey-green graywacke with very minor scattered mudstone pebbles. Weak pervasive spotty sericite. Trace disseminated pyrite bands (primary?) throughout. Very clean with very minor narrow, ≤ 1 cm, quartz + albite ± pyrite veinlets. Lower contact of unit is gradational over 0.5 metre. 450.70 1 cm. Quartz + albite ± pyrite ± galena vein @ 20° tca.	2201 2202 2203 2204 2205 2206 2207 2208	444.40 445.00 446.00 447.00 448.00 449.00 450.00 450.50	445.00 446.00 447.00 448.00 449.00 450.00 450.50 451.00	0.60 1.00 1.00 1.00 1.00 1.00 0.50 0.50		Tr. Tr. Tr. Tr. Tr. Tr. Tr. Tr.	Tr.		NIL 0.02 0.01 0.02 0.01 0.02 0.02 0.02	

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INTE	RVAL	DESCRIPTION	SAMPLE No. From To Length %Rec %Py %QV %Ser					AS	SAYS		
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		 453.15 3 cm wide, irregular quartz + albite vein with angular included wall rock fragments which tend to be replaced by 1-2%, very fine grained pyrite. 456.80 - 457.45 Mudstone, massive soft sericitic yellow-green mudstone. Lower contact is a very sharp hairline slip @ 40° tca. 	2209 2210 2211 2212 2213 2214 2215 2216 2217 2218 2219 2220	451.00 451.50 452.00 452.50 453.00 453.50 454.00 454.50 455.50 455.50 456.00 456.75	451.50 452.00 452.50 453.50 454.00 454.50 455.50 455.50 456.00 456.75 457.40	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	Tr. Tr. Tr. Tr. Tr. Tr. Tr. Tr. Tr.	Tr. Tr. Tr. 1-2 Tr. Tr. Tr. Tr.		0.01 0.02 0.04 0.02 0.17 0.03 0.13 0.06 0.15 0.30 0.88 0.15	
		457.45 - 458.30 Quartz + Pyrite + Visible Gold Vein. Sharp upper contact marked by quartz + chlorite slip @ 40°. Lower contact is a sharp vein contact @ 20° tca. Blue grey quartz breccia vein or silicified zone with strong fine internal micro-fracturing on which 1-2% fine grained patchy pyrite and 15-20 patches of Visible Gold, 0.5-2 mm wide, are readily recognizable. Fracturing and brecciating this grey-blue quartz is a later 5%, white-grey quartz + albite vein system which carries angular inclusions of mineralized quartz. In places remnant graywacke, quartz + jasper, can be recognized within this silicified zone. Note: Samples 2221, 2222 and 2223 were entirely pulverized and homogenized before being assayed. Two 1 assay-ton aliquots were assayed for samples 2221 and 2222 and one 1 assay-ton aliquot was assayed for sample 2223.	2221 2222	457.40 457.85	457.85 458.35	0.45 0.50	2-3 2-3	80 80	V. G. V. G.	63.70 137.42	64.12 136.87
		 458.30 - 489.50 Graywackes are light grey-green and massive with a weak to moderate pervasive sericitization of groundmass evident. In places where unit contains scattered pebbles (pebbly graywacke) select clasts are fuchsitic (volcanic) and some appear to be replaced by fine pyrite. Unit has trace-1% fine grained disseminated pyrite in groundmass. 458.30 - 458.90 Graywacke has 2-3%, 0.5-2 cm wide, sericitic mudstone rip-up clasts which are 10-90% replaced by fine grained pyrite ± quartz ± chlorite. 	2223 2224 2225	458.35 458.90 459.50	458.90 459.50 460.00	0.55 0.60 0.50	Tr0.5 Tr. Tr.		5	11.76 0.37 0.27	

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INTER	VAL	DESCRIPTION	1	SAMPLE							AS	SAYS			
FROM	то			No.	From	То	Length %	6Rec	%Py	%QV	%Ser			Au, g/t	Au, Check
		 467.25 1 cm wide quartz + albite v sugary vein with 1-2% fi chalcopyrite and blue-grey t grained galena. 467.25 - 485.00 There is a set of quartz + a chalcopyrite veins @ 5-20° tca 	ein @ 40° tca. Grey-white ne grained pyrite, trace porders possibly with fine lbite + pyrite ± galena ± . These veins range form 1-	22226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239	460.00 460.50 461.00 461.50 462.00 462.50 463.00 465.00 465.00 465.00 466.00 467.50 468.00 469.00	460.50 461.00 461.50 462.00 462.50 463.00 464.00 465.00 465.00 465.00 467.50 468.00 469.50	0.50 0.50 0.50 0.50 0.50 1.00 1.00 1.00		Tr. Tr. Tr. Tr. Tr0.5 Tr0.5 Tr. Tr1 Tr1 Tr. Tr. Tr.	Tr. Tr. 1-2 1 Tr.		Gal. (Cp.	0.34 0.49 0.52 0.40 0.88 0.90 1.41 0.45 0.69 0.27 2.47 2.33 1.20 0.51	
		2 mm to 1-2 cm wide. 469.55 - 469.65 3-5% patchy, pyrite minerali hairline slip @ 50° tca. 469.65 - 470.00 Graywacke carries 1% dissem 470.15 - 470.80 Quartz + albite + pyrite (1- tca. 1.5 cm wide, grey quartz quartz breccia fragments to occurs on small hairline fractu wall rock. Vein boundary is a	zation adjacent to a weak inated pyrite. 2%) ± galena vein @ 10° breccia vein with angular 0.5 cm within vein. Pyrite irres extending into adjacent blue-grey, pyrite ± galena	2240 2241 2242 2243	469.50 470.00 471.00 472.00	470.00 471.00 472.00 473.00	0.50 1.00 1.00 1.00		1-2 1-2 Tr1 Tr1	1 2-3 1		Gal.		3.22 15.64 2.57 1.85	15.70
		 mix, up to 1-2 mm wide. 473.20 - 473.85 5% grey-white quartz stringe moderately sericitized pebbly 1-2% patchy blebby pyrite an bands. Vein material is some contains 0.5% small pyritic patron 479.20 - 480.10 Quartz + pyrite breccia variant blue-grey to white t moderately well foliated se Breccia veins have strong contain 1-3% fine grained pyritic patron 473.20 - 480.10 Pyritic breccia veins have strong contain 1-3% fine grained pyritic patron 473.20 - 480.10 Pyritic breccia veins have strong contain 1-3% fine grained pyritic patron 473.20 - 480.10 Pyritic breccia veins have strong contain 1-3% fine grained pyritic patron 473.20 - 480.10 Pyritic breccia veins have strong contain 1-3% fine grained pyritic patron 473.20 - 480.20 Pyritic breccia veins have strong contain 1-3% fine grained pyritic patron 473.20 Pyritic breccia veins have strong contain 1-3% fine grained pyritic patron 473.20 Pyritic breccia veins have strong contain 1-3% fine grained pyritic pyritic breccia veins have strong contain 1-3% fine grained pyritic pyritic pyritic breccia veins have strong contain 1-3% fine grained pyritic pyritic pyritic breccia veins have strong contain 1-3% fine grained pyritic pyritic breccia veins have strong contain 1-3% fine grained pyritic pyritic breccia veins have strong pyritic byritic by	er (stockwork) zone within graywacke. Section contain d small, 1 mm wide, pyritic ewhat barren of pyrite but atches. eining (stockwork) 5-10% precciated quartz intruding ericitic pebbly graywacke. internal fracturing which rite.	2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254	473.00 473.50 474.00 475.00 476.00 477.00 478.00 478.60 479.20 479.60 480.10	473.50 474.00 475.00 476.00 477.00 478.00 478.60 479.20 479.60 480.10 480.80	0.50 0.50 1.00 1.00 1.00 0.60 0.60 0.40 0.50 0.70		1-2 1-2 Tr. Tr. Tr. Tr. Tr. 1-2 2-3 Tr.	3 3-5 1 2-3 5-7 Tr.	25 25			7.06 10.31 1.61 2.81 0.27 1.85 0.41 0.38 9.67 8.81 1.47	

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INTE	RVAL	DESCRIPTION				SAN	IPLE			AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au, Check
		480.80 - 481.10 3-5% blue-grey to white quartz breccia stringers up to 1 cm wide with 1% pyrite and trace galena. Very irregular	2255 2256	480.80 481.30	481.30 482.00	0.50 0.70	Tr1 Tr.	3 Tr.	Gal.	13.94 3.91	13.20
		stockwork @ 40-70° tca. 482.60 - 483.10 Quartz + albite + pyrite + galena + leucoxene vein @	2257	482.00 482.50	482.50 483.10	0.50 0.60	Tr.	2-3	Get	4.18	
		10° tca. 1-2 cm wide, irregular vein with 1-2% subhedral	2259	483.10	484.00	0.90	Tr.	2-5	Gal.	0.55	
		leucoxene.	2260 2261 2262	484.00 485.00 486.00	485.00 486.00 487.00	1.00 1.00 1.00	Tr. Tr. Tr.			0.48 0.62 1.92	
		488.10 - 488.95 Unit is cut by 2-5% irregular anastomosing quarter +	2263	487.00 488.00	488.00	1.00	Tr. Tr	2.3		1.65	
		chlorite ± pyrite (trace) stringers up to 2 cm wide @ 5- 20° tca.	2265	488.50	489.00	0.50	Tr.	3-5		0.65	
		488.95 - 489.50 Massive sericitic mudstone with minor intercalated siltstone @ 60° tca.	2266	489.00	489.50	0.50	Tr.	2-3		0.27	
		489.40 - 489.50 Fault @ 70° tca. Quartz + sericite ± pyrite. 7-8 cm wide quartz + albite vein with strong internal sericitic suturing	2267	489.50	490.00	0.50				0.10	
		and 1% blue-black quartz lamellae which carry 1% fine grained pyrite. Gives vein a partial banded appearance.	2268 2269	490.00 491.00	491.00 492.00	1.00 1.00				0.10 0.07	
			11909 11910 11911	492.00 493.00 494.00	493.00 494.00 495.30	1.00 1.00 1.30				0.02 0.02 0.02	
		496.30 - 496.65 2-3%, 0.1-1 cm irregular, discontinuous white albite + quartz veinlets. Trace disseminated pyrite in graywacke matrix.	11912 11913	495.30 496.30	496.30 496.80	1.00 0.50	1	2-3		0.02 0.09	
		496.65 - 496.75 Blue-grey to white, 2.5-3 cm wide, foliated pyrite + quartz vein @ 45° tca with 2-3% pyrite veinlets. Trace pyrite and dark grey silicification in wall rock over 5 cm above and below vein.								•	
		496.75 - 500.20 Trace pyrite in scattered 0.5-1 mm wide fractures @ 0-60° tca.	11914	496.80 497.40	497.40 498.00	0.60 0.60	Tr. Tr.			0.03	
			11916 11917 11918	498.00 499.00 500.00	499.00 500.00 501.00	1.00 1.00 1.00	Tr			0.02	
			2270	524.00	524.50	0.50	Tr.			0.02	
		525.05 - 525.15 Quartz + albite + sericite + pyrite vein @ 30°. 4-5 cm wide milk-white to grey vein with strong, internal sericitic	2271 2272 2273	524.50 525.00 525.50	525.00 525.50 526.00	0.50 0.50 0.50	Tr. Tr05 Tr.	2	Tr.	0.02 0.02 0.01	
		laminations and 0.5-1% subhedral spotty pyrite.	2274	526.00	526.50	0.50	Tr.			0.02	

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INTE	RVAL	DESCRIPTION	SAMPLE							AS	SAYS
FROM	TO		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
			2275 2276 2277 2278 2279	526.50 527.00 528.00 529.00 529.70	527.00 528.00 529.00 529.70 530.30	0.50 1.00 1.00 0.70 0.60	Tr. Tr. Tr. Tr.	2-3 Tr. 2-3		0.02 0.01 0.01 0.03 0.13	
530.00	535.10	CONGLOMERATE Bleached, sericitic, massive to weakly foliated, light green polymictic pebble conglomerate. Comprised of poorly sorted, well rounded pebbles from 0.5- 10+ cm wide, generally tightly packed framework supported in a moderately sericitized graywacke matrix. Lower contact is a strong sharp chloritic slip @ 70° tca with moderate gouge developed.	2280 2281 2282 2283 2284 2285 2286	530.30 531.00 531.50 532.00 533.00 534.00 534.50	531.00 531.50 532.00 533.00 534.00 534.50 535.10	0.70 0.50 1.00 1.00 0.50 0.60	Tr.	Tr.		0.02 0.01 0.09 0.03 0.01 0.01	
535.10	539.75	MUDSTONE/SILTSTONE Massive, very fine grained to aphanitic, dark grey mudstone/ siltstone. Weak foliation @ 40° tca. Lower contact of unit is sharp @ 60° tca.									
		535.45 - 535.60 Fault @ 55° tca. Sericite + quartz. Strongly sheared, sericitic mudstones (button core) with strong sharp sericitic mud gouge slips and minor quartz ± chlorite veinlets. Broken rubbly.	2287	535.10	535.60	0.50 95		Tr.		0.02	
		 535.90 Fault @ 70° tca. Sericite ± chlorite + quartz. 0.5 cm wide barren quartz with strong mud gouge slip faces. 536.25 - 536.55 Sheared, fractured quartz vein @ 80° tca. Dark grey to white silicified zone with strong internal sericitic suturing and highly deformed sheared mudstone gouge. Vein contains trace to 1% fine grained pyrite on fractures and sericitic suturing. Somewhat rubbly with sharp abrupt contact. 	2288 2289 2290 2291 2292 2293	535.60 536.10 536.55 537.10 538.00 539.00	536.10 536.55 537.10 538.00 539.00 539.75	0.50 0.45 95 0.55 0.90 1.00 0.75	0.5-1	30	40-50	0.03 0.03 0.02 0.02 0.02 0.03	
539.75	543.85	 CONGLOMERATE Massive to weakly foliated @ 40° tca, matrix supported polymictic pebble conglomerate. Weak to moderate sericitization evident as spotty sericite in groundmass and selective sericitization of some clast types generally mudstones. Very minor disseminated pyrite in groundmass. 543.00 - 543.30 Fault zone @ 40° tca. Sericite + chlorite ± pyrite. Foliated fractured conglomerate with strong, 0.5 mm 	2294 2295 2296 2297 2298 2299	539.75 540.50 541.00 542.00 543.00 543.50	540.50 541.00 542.00 543.00 543.50 544.00	0.75 0.50 1.00 1.00 0.50 0.50	Tr. Tr.	Tr.	30	0.03 0.02 0.02 0.03 0.01 0.02	

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INTE	RVAL	DESCRIPTION	SAMPLE						AS	SAYS	
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
543.85	550.60	wide, irregular sericitic fracturing leading to strong mud fault @ 543.25 m. Minor patchy blebby pyrite. MUDSTONE Massive, dark grey aphanitic mudstone. Pristine, undeformed. Lower contact sharp and intact @ 75° tca.	2300	544.00	545. 0 0	1.00				0.01	
550.60	609.95	 GRAYWACKE/CONGLOMERATE Chloritic, weakly sericitized, very clean, well sorted graywacke which is massive to weakly bedded @ 70° tca. Intercalated with minor conglomerate horizons, up to 2 m wide, which generally have gradational contacts. 575.10 - 575.25 Fault @ 75° tca. Sericite + chlorite + quartz. Moderately strong, sericitic shear with sharp tight slip contacts. Contains 20% barren white quartz flooding. 602.60 - 603.10 Fault @ 30° tca. Strong cross-fault with chlorite + quartz ± calcite + pyrite. Strongly fractured to pseudo-brecciated, white to pink quartz ± calcite veining with strong internal chlorite + sericite suturing. Very minor pyrite on fractures. 603.05 0.5 cm wide mud gouge. 	2301 2302 2303 2304	602.00 602.60 603.10 604.00	602.60 603.10 604.00 605.00	0.60 0.50 0.90 1.00	Tr. Tr. Tr.	60 1-2		0.03 0.01 0.07 0.03	
	609.95	E. O. H. Casing left in hole. <u>Additional Assays</u> <u>Sample No. Pb (ppm) Zn (ppm) Te (ppm)</u> 2222 704 368 1 2255 3,200 506 6 2258 9,150 30,200 1			•						

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INTE	RVAL	DESCRIPTION	SAMPLE						SSAYS
FROM	то		No.	From	Au, g/t	Au,Check			
FROM	10	Abbreviations Used in Sample Descriptions Tr. Trace Chl. Chlorite V. G. Visible Gold or Native Gold Gal. Galena Cp. Chalcopyrite	No.	From	To	Length %Rec	%Py %QV %Ser	Au, g/t	Au,Check
					• .				

HOLE: AK-92-40

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TOWNSHIP	Teck	DATE LOGGED LOGGED BY DRILLED BY	Mark Masson Heath & Shanwood	EASTING NORTHING	8395.0 10433.4	Depth	Method	Azimuth	Dip
STARTED COMPLETED	February 8, 1992 February 24, 1992	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake Warehouse B.M.C.I. Sperry Sun	LENGTH UNITS CORE SIZE	327.4 Northland Technical 716.4 metres NQ	Note:	See table at for downhole	end of sumn surveys	ary log
PURPOSE	To test "102" / "103" stru	icture at 500 m. level.	1 B						
COMMENTS	"102" / "103" structure @	9 607.80 - 641.90, 34.1 m.	SIGNED BY (W. Benh	am)					

	SUM	MARY LOG		ASSAY SUMMARY
INTERVAL	DESCRIPTION	INTERVAL	DESCRIPTION	INTERVAL LENGTH AVERAGE
From To		From To		From To in metres Au g/t
0.00 5.20	OVERBURDEN		357.10 - 360.25 Quartz + calcite + pyrite veins	607.80 608.70 0.90 9.47
5.20 34.60	GRAYWACKE		@ 45° tca. Trace pyrite. Silicified	
34.60 45.00	CONGLOMERATE		and sheared mudstone.	
45.00 68.60	LAPILLI TUFF	360.25 371.25	CONGLOMERATE	
68.60 83.80	GRAYWACKE		366.60 - 366.90 Fault @ 15° tca.	
83.80 118.00	LAPILLI TUFF	371.25 375.40	GRAYWACKE/SILTSTONE	
	83.80 - 84.00 Fault breccia.		371.25 - 372.00 Silicified gravwacke. Sheared @	
	92.70 Fault @ 45° tca.		30° tca. Trace pyrite.	
118.00 125.90	GRAYWACKE	375.40 392.00	CONGLOMERATE	
125.90 126.75	MUDSTONE/SILTSTONE	392.00 414.00	LAPILLI TUFF	
126.75 133.10	CONGLOMERATE	414.00 492.00	CONGLOMERATE	
	132.75 - 133.10 Fault zone @ 25° tca.		491.60 • 492.00 Fault @ 15° tea	
133.10 138.85	GRAYWACKE	492.00 551.00	LAPILLI TURF	
138.85 294.60	CONGLOMERATE		517.00 - 517.30 Fault @ 15º too	
	195.20 Fault @ 30° tea	551 00 570 20	I ADII I I THEE	
	$\begin{array}{c} 1 \\ 293.00 \\ \end{array}$	551.00 575.50	Carlotto Sarioitio	
294 60 327 70	GRAVWACKF/SILTSTONE/CONCLOMEDATE	570 20 504 70		
274.00 527.10	203 70 - 202 05 Eault @ 10º too	519.30 594.10	LATILLI IUFF	
	200.00 - 200.20 Fault @ 10 tca.	504.00 (00.00		
22770 25600	$\frac{1}{2} \frac{1}{2} \frac{1}$	594.70 603.50	LAPILLI TUFF	
321.10 330.80	CONGLUMERATE	(00 0 0 (0) 00	Sericitic.	
355.50 - 355.70 Fault @ 25° tca. 603.50 606.00 MUDSTONE/GRAYWACKE 356.80 360.25 GRAYWACKE/SILTSTONE/MUDSTONE 606.00 608.50 CONCLOMEDATE				
330.80 300.23	GRAYWACKE/SILTSTONE/MUDSTONE	606.00 608.50	CONGLOMERATE	

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HOLE: AK-92-40

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TOWNSHIP	Amaigamated Kirkland Teck	DATE LOGGED LOGGED BY	February 9, 1992 - February 25, 1992 Mark Masson	EASTING NORTHING	8395.0 10433.4	Depth	Method	Azimuth	Dip
STARTED COMPLETED	February 8, 1992 February 24, 1992	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake Warehouse B.M.C.I. Sperry Sun	LENGTH UNITS CORE SIZE	327.4 Northland Technical 716.4 metres NQ	Note:	See table at for downhole	end of sumn surveys	ary log
PURPOSE	To test "102" / "103" stru	icture at 500 m. level.							
COMMENTS	"102" / "103" structure @	9 607.80 - 641.90, 34.1 m.	SIGNED BY (W. Benham)						

	SUM	MARY LOG		AS	SSAY SUMM	ARY
INTERVAL	DESCRIPTION	INTERVAL	DESCRIPTION	INTERVAL	LENGTH	AVEDAGE
From To		From To		From To	in metres	Au g/t
	607.90 - 608.25 1% pyrite, silicified. 608.25 - 608.50 Quartz + pyrite breccia vein @ 30° tca, 1-3% pyrite.	716.40	Е. О. Н.			
608.50 617.40	LAPILLI TUFF Sericitic.					
617 40 621 70	MUDSTONE/SU TSTONE					
621 70 639 60	LAPILLITURE					
021.70 035.00	619.00 - 633.50 Sericitic					
	633 50 - 637 50 Hematitic					
	637.50 - 639.60 Sericitio					
	638.60 - 638.70 Fault @ 45° toa					
639.60 641.90	GRAYWACKE/MUDSTONE					
	Sericitic.					
	641.60 - 641.90 1-2% blue-grey quartz veinlets					
	trace pyrite.					
641.90 715.00	GRAYWACKE					
	662.10 Fault @ 65° tca, trace pyrite + 1-					
	2% quartz veinlets.					
	691.90 - 692.35 Quartz + sericite vein, trace					
	pyrite, chalcopyrite.					
715.00 716.40	CONGLOMERATE					

HOLE: AK-92-40

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TOWNSHIP	Amalgamated Kirkland Teck	DATE LOGGED LOGGED BY	February 9, 1992 - February 25, 1992 Mark Masson	EASTING NORTHING	8395.0 10433.4	Depth	Method	Azimuth	Dip	
STARTED COMPLETED	February 24, 1992 February 24, 1992	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake Warehouse B.M.C.I. Sperty Sun	ELEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	327.4 Northland Technical 716.4 metres NO	Note:	See table be downhole su	low for all rveys		
PURPOSE	To test "102" / "103" stru	cture at 500 m. level.			-					
COMMENTS	"102" / "103" structure @	2 607.80 - 641.90, 34.1 m.	SIGNED BY (W. Benham)						

				SUM	MARY LOG					T		ASSAY S	UMM	ARY	
INTERVAL From To		DESCRI	PTION		INTERVAL From To		DESCRI	IPTION			INTERVAL From To	LENC)TH res	AVI	ERAGE Au g/t
	Dept	h Method	Azimuth	Dip		Depth	Method	Azimuth	Dip		Depth	Method	Azimı	uth	Dip
	Colla	ir Compass	161	75		487.0	Sperry Sun	156	70						
	7.0	Acid		75		536.0	Sperry Sun	155	67						
	53.0	Sperry Sun	162	75.5		584.0	Sperry Sun	153	63						
	63.0	Acid		75		639.0	Sperry Sun	150	55						
	93.0	Sperry Sun	158	75		670.0	Sperry Sun	146	50						
	122.	Acid		74		715.0	Sperry Sun	139	41.5						
	175.:	Sperry Sun	158	74									1		
	252.	Sperry Sun	158	72.5									1		
	294.	Sperry Sun	156	72.5											
	370.	Sperry Sun	154	72]							
	450.0	Sperry Sun	154	70.5											
											L				1

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INTE	RVAL	DESCRIPTION				SAM	APLE			AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
0.00 5.20	5.20 34.60	OVERBURDEN GRAYWACKE Massive to weakly foliated, light grey-green graywacke comprised of 60% quartz, 40% lithics, up to 1 mm wide. Contains < 1% scattered well rounded pebbles and in places narrow horizons of angular sericitized mudstone clasts. Unit displays a weak to moderate, pervasive sericitization as spotty to wispy sericite in matrix and selective sericitization of some clasts, generally mudstones. Overall unit has numerous sericitic slips and 2-3% barren quartz ± albite ± chlorite stringers @ 5-25° tca associated with cross-faulting.									
		 26.35 - 27.10 Fault @ 5-45° tca. Chlorite + sericite + quartz/albite. Very irregular, fragmented, brecciated fault comprised of angular white quartz and sericitic wall rock fragments in a dark chloritic groundmass. Two prominent fabrics @ 5° and 45° tca. (Cross-fault). 27.10 - 33.20 Prominent chloritic fracturing @ 0-10° tca. Graywackes are intercalated with pebble conglomerates and juxtaposed against ash/lapilli tuff due to low angle slips. 33.40 - 34.60 Fault @ 5-10° tca. Chlorite + sericite ± quartz/albite. Fault breccia comprised of 2-3 cm wide, angular quartz + sericitized wall rock fragments in a dark chloritic groudmass. Non-mineralized. 				· · · · · · · · · · · · · · · · · · ·					
34.60	45.00	 CONGLOMERATE Massive to moderately well foliated @ 20-35° tca. Polymictic pebble conglomerate comprised of 10-40% well rounded clasts, up to 10 cm. Poorly sorted and varies from framework to matrix supported. Pervasive, moderate wispy sericitization of matrix and sericitization of selective clasts. Lower contact appears to be somewhat gradational over 1 m but is obscured by faulting. 40.70 - 41.30 Fault zone @ 15° tca. Chlorite + sericite + quartz. Strong, sharp chloritic slips with barren milk-white quartz ± albite veins to 2 cm wide. Interstitial to chloritic slips, unit is highly sericitic and sheared. 									

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INTE	RVAL	DESCRIPTION				SAN	IPLE			AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV 9	6Ser	Au, g/t	Au,Check
45.00	56.40	LAPILLI TUFF Massive medium grained lapilli tuff comprised of 5-15% angular trachyte clasts from 0.5-7 cm, (avg. 2 cm) in a very fine grained ash matrix. Clasts are predominantly light buff-brown, very fine grained trachyte and dark grey-green, very fine grained to spotted trachyte. Non-magnetic. Lower contact of unit is moderately sericitic and marked by irregular quartz veinlets (1-3 mm) @ 45° tca.									
		 45.00 - 45.20 Fault @ 30° tca. Sericite + chlorite + quartz + albite. 40% grey-white, barren quartz + albite veining with strong, sharp sericite + chlorite slips. 48.10 - 48.30 Fault @ 30° tca. Sericite + chlorite + quartz + albite. As above, massive barren white-pink quartz ± albite veining with chloritic fracturing situated on strong, sharp chlorite + sericite slip planes. 48.55 - 48.70 Fault @ 35° tca. Chlorite + sericite + quartz + albite, as above. 									
56.40	68.60	LAPILLI TUFF Massive, coarse grained heterolithic tuff comprised of 5-20% angular to subrounded clasts form 0.5-10 cm (avg. 1-3 cm) in a dark green chloritic to purple hematitic groundmass. Clasts are pink-brown trachyte, light grey trachyte and dark green to black aphanitic volcanic. Patchy strong magnetics. Lower contact very sharp @ 40° tca.									
68.60	83.80	 GRAYWACKE Massive, very fine grained, clean well sorted graywacke with a weak to moderate pervasive sericitization as spotty sericite and irregular wispy sericite fracturing. Unit contains very minor, scattered angular mudstone chips. Lower contact is a strong fault breccia. 73.30 - 73.40 Fault @ 40° tca. Chlorite + sericite + quartz. 73.40 2-3 mm wide, strong fault breccia ± gouge with a 5 cm wide, barren quartz ± albite vein with irregular sericitic suturing. Wall rock adjacent to fault is fractured and cut by narrow (≤ 2 mm) chlorite + sericite slips. 									

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INTE	RVAL	DESCRIPTION				SAM	IPLE			AS	SAYS
FROM	то		No.	From	To	Length %Rec	%Py %	6QV %	Ser	Au, g/t	Au,Check
83.80	118.00	LAPILLI TUFF									
		 83.80 - 84.00 Fault breccia @ 30° tca. Chlorite + sericite ± quartz. In situ brecciation of angular wall rock fragments + quartz (≤ 2 cm) in a dark chloritic matrix. Contacts are strong, sharp sericitic mud slips and irregular chloritic fracturing. Non-mineralized cross-fault. 84.00 - 85.00 Unit is pseudo-brecciated "crack and seal" by anastomosing chlorite fractures and slips. 84.00 - 87.00 Tuff is bleached, light green and pervasively sericitized. 87.00 - 92.40 Massive, red-purple hematitic lapilli tuff with 5-10% angular lapilli clasts, to 3 cm wide, in a fine grained, hematized ash matrix. Typically heterolithic, nonmagnetic. 92.40 - 99.50 Bleached lapilli tuffs with pervasive sericitization of matrix and abundant chloritic fracturing throughout, (cross-fault alteration). 92.70 Fault @ 45° tca. Chlorite + sericite + quartz. 3 cm wide, strong zone comprised of 20%, fractured and brecciated white quartz in a strong chlorite + sericite ± gouge matrix. 93.70 Fault @ 25° tca. Chlorite ± sericite + quartz. Strong chloritic shear with 10% fractured quartz and strong, tight slips, 3 cm wide. 96.00 Fault @ 30° tca. 3 mm wide, strong chlorite + quartz slip. 98.15 0.5 cm wide, othorite + quartz slip @ 35° tca. 98.50 Fault @ 40° tca. Chlorite ± chlorite + quartz + albite. Two sharp, strong sericite + chlorite slips with deformed sericitized tuff with 25% barren while-pink, irregular quartz veining. 113.00 - 118.00 Lapilli tuff becomes partly intercalated with graywacke and pebbly graywacke carrying exotic clasts such as quartz + feldspar porphyry, mudstone and jasper, giving rise to a mixed volcano-sedimentary unit (contact zone). Section is also moderately deformed and pervasively sericitized giving units an overall bleached mottled appearance. Nonmineralized. 									

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INTERVAL FROM TO		DESCRIPTION					SAN	IPLE		······································	AS	SAYS
FROM	то		No.	From	То	Length	%Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		 114.80 Strong, sharp, 1-2 mm, chlorite slip @ 40° tca with irregular chloritic fracturing extending into wall rock at right angles to slip. 115.60 - 115.70 Fault @ 30° tca. Chlorite + sericite + quartz + albite. 5 cm wide, barren white-pink quartz ± albite vein bounded by strong sharp chloritic slips. 117.00 - 117.10 Fault @ 25° tca. Sericite + chlorite + quartz + albite. Strong, sharp sericitic mud slip. Wall rock is strongly foliated to crenulated with strong, wispy sericite developed. 										
118.00	125.90	 GRAYWACKE Massive, very fine grained, light grey-green. Well sorted, very clean undeformed with weak to moderate pervasive spotty sericite. Unit carries trace, finely disseminated pyrite. Lower contact is sharp, irregular bedding contact cut by a 1 cm wide, quartz + albite vein. Bedding @ 55° tca. 118.15 - 118.30 Fault @ 40° tca. Sericite + chlorite + quartz + albite. Strong, sharp sericitic mud slips bounding a 5-6 cm wide, barren quartz + albite vein with strong, internal sericitic suturing. 										
125.90	126.75	MUDSTONE/SILTSTONE Well bedded, very finely laminated @ 55° tca, yellow-green sericitic mudstone and dark green, chloritic silts. Bedding ranges from a few mm to 3 cm wide.					•					
126.75	133.10	 CONGLOMERATE Massive, chloritic, undeformed, pristine polymictic pebble conglomerate. Classic framework-supported Timiskaming conglomerate comprised of 10- 50% poorly sorted, well rounded pebbles up to 25 + cm in a fine grained graywacke groundmass. 132.75 - 133.10 Fault zone contact @ 25° tca. Chlorite + sericite + quartz. Upper contact is a sharp strong, 0.5 cm wide, quartz + chlorite slip (slickenside, east side down). Lower portion is sheared crenulated conglomerate with strong sericitic parting and irregular chloritic fracturing. 										

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INTE	RVAL	DESCRIPTION					SAM	PLE				AS	SAYS
FROM	то		No.	From	То	Length %	Rec	%Py	%QV	%Ser		Au, g/t	Au,Check
133.10	138.85	GRAYWACKE Massive to weakly bedded @ 30-40° tca. Very fine grained, well sorted, light green graywacke. Weak to moderate pervasive, spotty sericitization. Intercalated with minor laminated mudstone. Lower contact is sharp but irregular.											
		 133.10 - 133.70 Unit is fractured to pseudo-brecciated (in- situ) by numerous chloritic fractures and slips associated with previous fault. 136.45 - 136.65 Fault @ 15° tca. Chlorite + sericite + quartz. Strong rubbly broken shear with slickenslides developed on chloritic faces. Appears to be east side down. 											
138.85	294.60	 CONGLOMERATE Massive, chloritic, pristine, tightly packed, framework-supported polymictic pebble conglomerate. Unit is in part intercalated with minor graywacke and mudstone horizons up to 1 metre wide. 166.20 - 166.30 Fault @ 40° tca. Sericite + chlorite + quartz. 5-6 cm wide, barren grey-white quartz vein with strong internal sericitic suturing and sharp sericite + chlorite slip walls. 171.00 Well bedded mudstone @ 15-20° tca. 174.15 - 174.60 Fault @ 5-10° tca. Chlorite + sericite + quartz. 2-4 cm wide, strong tight break with 15% fractured, disrupted white quartz. 185.00 - 186.70 Fault zone @ 5-25° tca. Chlorite + sericite + quartz. Series of strong irregular quartz + chlorite breccia zones subparallel to core. Interstitial to slips, unit is strongly fractured to brecciated (in-situ) by dark chloritic stringers. Barren, cross-fault. 190.00 - 190.60 Fault @ 15° tca. Sericite + chlorite slip planes with 15% irregular white quartz veining. Internally veining is fractured by strong chloritic seams, 1-2 mm wide and displays small ladder vein systems (tension filling) of dark grey galena(?) and secondary euhedral pyrite crystals on the small (resudomorth?) ealena clusters 	2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320	183.00 184.00 185.00 185.50 186.00 186.70 187.50 188.30 189.00 190.00 190.70 191.30 192.00 192.60 193.50	184.00 185.00 185.50 186.00 187.50 188.30 189.00 190.00 190.70 191.30 192.00 192.60 193.50 194.50 195.00	1.00 1.00 0.50 0.50 0.70 0.80 0.70 1.00 0.70 0.60 0.70 0.60 0.90 1.00 0.50		Tr. Tr. Tr. Tr.	5 3-5 5 Tr. 10 Tr. 3 1-2 Tr. 1 2	35 35 35 20 25 20	Gai Gai	0.01 0.03 0.02 0.01 0.01 0.01 0.01 0.02 NIL 0.01 0.03 0.01 0.01	

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INTE	RVAL	DESCRIPTION			-8	SAN	IPLE				AS	SAYS
FROM	ТО		No.	From	То	Length %Rec	%Py	%Q	V %Ser		Au, g/t	Au,Check
294.60	327.70	 195.20 Fault gouge @ 30° tca. 3-4 mm wide, strong tight chloritic mud gouge. Adjacent wall rock somewhat sericitic and fractured but otherwise very tight. 243.00 - 261.00 Moderately well foliated, weakly to moderately sericitic and contains numerous 1-3 mm, tight chlorite + sericite ± quartz ± albite slips @ 5-25° tca. Cross-faulting, non-mineralized. 293.00 Fault @ 40° tca. 1-2 cm wide, strong chlorite mud gouge break. Very sharp with little to no wall rock alteration. 293.50 - 294.60 Fault @ 5° tca. Chlorite + sericite + quartz + calcite ± pyrite. 1-2 cm wide, anastomosing braided slip with hairline to 1.5 cm wide, grey-white quartz + calcite veining, vuggy with strong internal sericite slips. Very minor trace pyrite on wispy sericite. GRAYWACKE/SILTSTONE/CONGLOMERATE Chloritic, massive to well bedded @ 40° tca. Intimately interfingered, between the serie of t	2321 2322	195.00 195.50	195.50 196.00	0.50 0.50	Tr.	1- Ti	2 15-20 r.		0.01 0.01	
		 aphanitic siltstone, fine grained graywacke and pebbly graywackes (fine grained conglomerate). Pristine, undeformed. Bedding varies from a few millimetres to 1 metre wide. In places, narrow pyrite bands up to 1 cm (avg. 2-3 mm) are evident parallel to bedding and appear to be primary (eg. @ 298.0 m). Lower contact is gradational over 3-4 metres. 301.00 Fault @ 70° tca. Sericite + chlorite + quartz. Sharp, strong, tight slip with minor gouge developed. 301.00 - 301.10 Irregular milk-white quartz ± albite vein with small chlorite + sericite inclusions. Non-mineralized. 303.70 - 303.95 Fault @ 10° tca. Sericite + chlorite + quartz + calcite. Strong, tight muddy slip with moderate gouge developed. 303.95 - 304.70 Bleached, sericitized graywacke and siltstone. This alteration enhances the primary interfingering of units giving the section an irregular mottled appearance. Alteration gradually decreases away from fault, grading to unaltered graywacke/ siltstone. 306.00 Fault @ 25° tca. Sericite + chlorite + quartz + calcite. Strong, tight mud gouge slip planes with 5-6 mm wide, quartz + calcite veinlets. 	2323 2324 2325 2326 2327 2328 2329 2330 2331 2332	299.00 300.00 300.90 301.40 302.00 303.00 303.60 304.10 304.80 305.50	300.00 300.90 301.40 302.00 303.60 304.10 304.80 305.50 306.00	1.00 0.90 0.50 0.60 1.00 0.60 0.50 0.70 0.70 0.50	Tr. Tr. Tr. Tr.	2- 1- 3- 3- 1-	3 10 2 2 5 15-20 5 20-30 2	Cal	0.02 0.02 0.03 0.03 0.01 0.02 0.02 0.01 0.02 0.02	

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INTE	RVAL	DESCRIPTION				SAM	IPLE	·			AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser		Au, g/t	Au.Check
		 306.00 - 307.10 Units are bleached, sericitized as before with differential alteration of graywacke and siltstone beds which gives a distinct mottled texture. 309.00 - 309.20 Fault zone @ 65° tca. Chlorite ± quartz. Strong, tight chloritic mud slips 1-5 mm wide. Proximal to slips, unit is fractured to brecciated pebbly graywacke with 2% disrupted, brecciated white quartz pods. 310.10 Fault gouge, broken, rubbly fault zone @ 60° with strong chloritic fault gouge developed. Adjacent unit is fractured to pseudo-brecciated with strong chloritic suturing. 315.85 - 317.40 Irregular, pale grey-white quartz + calcite flooding with a very irregular, mottled texture. Zone has trace wispy pyrite on narrow hairline sericite sutures. Looks like alteration of primary soft sediment deformation. Some irregular alteration at 318.25-318.90 and 319.50 -319.95. Interstitial to this alteration, units are massive to well bedded, unaltered graywacke + siltstone. 322.15 - 322.40 Bleached quartz + calcite alteration. 	2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358	306.00 306.50 307.10 308.00 309.00 309.50 310.00 310.50 311.00 311.50 312.00 313.00 314.00 315.00 315.00 315.80 316.50 317.40 319.00 319.50 320.00 321.00 322.00 322.50 323.00 324.00	306.50 307.10 308.00 309.00 310.00 310.50 311.00 311.50 312.00 313.00 314.00 315.00 315.80 316.50 317.40 318.20 319.00 319.50 320.00 321.00 322.00 322.50 323.00	0.50 0.60 0.90 1.00 0.50 0.50 0.50 0.50 0.50 1.00 1.00 1.00 1.00 1.00 1.00 0.80 0.70 0.90 0.80 0.50 0.50 1.00	Tr. Tr. Tr. Tr. Tr. Tr. Tr. Tr. Tr. Tr.	2-3 2-3 1-2 Tr. 1-2 Tr. Tr. 2-3 1-2 10-15 5-10 3-5 2-3 3-5	30-40 30-40 5-10 5-10 5-10 5-10 10-15 5-10 5-10 5-	Cal Cal Cal Cal Cal Cal Cal	Au, gr 0.01 0.02 0.01	Au, Check
327.70	356.80	 CONGLOMERATE Massive, chloritic, polymictic pebble conglomerate. Variable from tightly packed framework-supported to matrix-supported. Clasts range from 0.5-5+ cm, poorly sorted and include sedimentary, volcanic and igneous clasts generally well rounded. Weak to moderate foliation with clast elongation @ 25° tca. 340.20 - 340.65 Broken rubbly section with sharp strong chlorite slips and fracturing @ 25° tca. Weak gouge developed. 										

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INTE	ERVAL	DESCRIPTION				SAN	MPLE				SAVS
FROM	то		No.	From	То	Length %Rec	%Pv	%OV	%Ser	Au oft	Au Check
		355.50 - 355.70 Fault @ 25° tca. Chlorite + quartz + calcite. Broken rubbly fault with weak to moderate gouge on chloritic slips. Sharp contact with minor barren quartz ± calcite stringers.	2359 2360	355.50 356.00	356.00 356.80	0.50 98 0.80		Tr.		0.01 0.02	- Mijonock
356.80	360.25	GRAYWACKE/SILTSTONE/MUDSTONE Graywacke + siltstone + mudstone horizon, dark green-grey, chloritic, massive to well bedded @ 50° tca. Finely interfingered and frequently very irregular contacts are evident.					-				
		 357.10 Sharp chlorite + quartz slip @ 30° tca. 357.10 - 357.25 Quartz + sericite ± pyrite veining. Highly irregular zone (silicification?) or vein of buff to cream to light green quartz, somewhat cherty appearance. Internally vein displays a weak lamination and irregular stylolitic suturing. Trace pyrite on sutures and hairline fracturing. Cut by a later generation of barren quartz veins, ≤ 1 cm 	2361	356.80	357.30	0.50	Tr0.5	20		0.02	
		wide, @ 90° to fault slip. 357.45 - 357.65 Quartz ± calcite breccia veins @ 45° tca. Two, 4 cm wide, cream white quartz ± albite ± calcite vein with two distinct angular breccia fragments. Blue-grey quartz + calcite fragments and bright green, sericite ± fuchsite, altered wall rock clasts. Trace pyrite as pervasive disseminations within wall rock clasts and hairline fractures with very fine grained patchy pyrite.	2362 2363 2364 2365	357.30 357.80 358.50 359.00	357.80 358.50 359.00 359.80	0.50 0.70 0.50 0.80	Tr. Tr.	10-15 3-5 Tr. Tr.		0.04 0.02 0.02 0.03	
		359.85 - 360.25 Silicified sheared mudstone (?), very irregular foliation @ 30° tca. Very minor pyrite on foliation planes.	2366	359.80	360.30	0.50	Tr.		Sil	0.02	
360.25	371.25	CONGLOMERATE Massive, chloritic, polymictic pebble conglomerate. Variable from tightly packed framework-supported to matrix-supported. Clasts range from 0.5- 5+ cm, poorly sorted and include sedimentary, volcanic and igneous clasts generally well rounded. Weak to moderate foliation with clast elongation @ 25° tca.									
		 360.60 - 360.80 Fault @ 60° tca. Chlorite + quartz + calcite. Strong, dry chloritic fault with 5% fractured broken quartz ± calcite veinlets. 363.00 - 363.20 Fault @ 20° tca. Chlorite ± quartz + calcite, sharp tight chloritic slip planes, little to no wall rock alteration. 	2367 2368	360.30 361.00	361.00 362.00	0.70 1.00				0.02 0.01	

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INTE	RVAL	DESCRIPTION					SAN	IPLE			AS	SAYS
FROM	то		No.	From	То	Length	%Rec	%Py	%QV	%Ser	Au, g/t	Au.Check
371.25	375.40	 366.60 - 366.90 Fault @ 15° tca. Chlorite + quartz + calcite. 1-2 cm wide, tight, strong chloritic slip with moderate gouge. GRAYWACKE/SILTSTONE Graywacke + siltstone, finely intercalated, locally well bedded @ 35-45° tca. 	2369	370.45	371.25	0.80					0.01	
		371.25 - 372.00 Yellow-green to buff, aphanitic siliceous + carbonated section (possibly sheared) with small irregular hairline sutures of purple quartz and minor pyrite. Pervasive hydrochloric acid reaction.	2370 2371 2372 2373 2374	371.25 372.10 372.80 373.40 374.00	372.10 372.80 373.40 374.00 375.00	0.85 0.70 0.60 0.60 1.00		Tr. Tr. Tr.	Tr. 2-3	Sil Cal	0.01 0.02 0.02 0.01 0.01	
375.40	392.00	CONGLOMERATE Massive, pristine polymictic pebble conglomerate. Lower contact very sharp, intact and somewhat irregular to gradational over 1 m with minor mixing evident.										
392.00	414.00	LAPILLI TUFF Massive, chloritic, coarse heterolithic tuff with 5-25% angular to subrounded clasts from 3-4 mm to 8 cm wide (avg. 2-4 cm) in a fine grained, dark ash matrix. Somewhat variable from dark red-brown to green. Weak patchy magnetics. Lower contact sharp and somewhat irregular.	- - -			·						
		396.10 - 396.50 Fault @ 50-60° tca. Chlorite + sericite + quartz ± albite. Rubbly broken section comprised of moderately strong chlorite + sericite slips with 10% barren white to cream quartz + albite veining.										
414.00	492.00	CONGLOMERATE Chloritic, massive to weakly foliated @ 10-25° tca. Quite coarse, polymictic pebble-cobble conglomerate. Pristine with 10-50% well rounded pebbles (porphyry mafic volcanic sediments tuff, jasper, quartz, etc.) from 0.5-15+ cm wide in a fine grained graywacke matrix. Variable from framework to matrix-supported. Lower contact is a very strong cross-fault.										
		436.00 - 436.10 Fault @ 65° tca. Chlorite + sericite + quartz/albite. Barren white quartz + albite veining with strong internal fracturing and brecciation by chloritic stringers. Slip boundaries are sharp, tight chlorite + sericite.										

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INTE	ERVAL	DESCRIPTION				SAN	IPLE			AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au. g/t	Au.Check
		 479.00 Fault @ 15° tca. 3-5 mm wide, strong tight chloritic shear. No wall rock alteration. 491.60 - 492.00 Strong cross-fault @ 15° tca. Chlorite + sericite + quartz ± calcite. Very strong chlorite + sericite + mud gouge slip planes up to 2 cm wide with a 4-5 cm wide, barren irregular quartz + albite ± calcite, ankerite veining. 									
492.00	551.00	 LAPILLI TUFF Chloritic ± hematitic ± sericitic lapilli tuff. Unit is dark grey-green to purple where hematitic. Massive to very weakly foliated. Comprised of 5-15% angular lapilli clasts from 2-3 mm to 8 cm (avg. 2-3 cm) in size, floating in a very fine grained dark ash matrix. Clasts consist of 85% redbrown, fine grained trachyte, 10% dark green aphanitic volcanics and 5% miscellaneous clasts (trachytes). Unit is typically moderately bleached sericitic proximal to tight sericitic slips which gives the tuffs an overall mottled irregular appearance as they grade from chloritic to hematitic to sericitic. Lower contact somewhat subjective and gradational. 492.00 - 492.60 Strongly deformed, crushed lapilli tuff with numerous tight sericitic slips throughout. 492.60 3 mm wide, strong chloritic gouge break @ 15° tca. 505.80 Tight sericitic slip @ 20° tca. Lapilli tuff is moderately sericitic up to 15 cm from slip. 513.60 - 513.70 Fault @ 60° tca. Sericite + chlorite + quartz. Moderately strong sericitic + chloritic slips with 25% pink-brown quartz veining with strong internal sericitic suturing. 517.80 Tight, 3-4 mm wide, chloritic shear @ 5-10° tca. 513.00 - 522.00 Lapilli tuff displays patchy, irregular bleaching and sericitization related to above faulting. Gradually grades to red-brown-purple, hematitic tuffs. 531.90 Fault @ 70° tca. Chlorite + sericite + quartz. Very tight slip with 0.5 cm wide, milk-white quartz veinlet. 539.50 - 548.00 Unit displays a weak to moderate prevasive to patchy sericitization and contains minor tight sericite slips and < 1% barren, white quartz ± albite veinlets up to 2 cm wide. No strong prominent breaks are evident. 									

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INTE	RVAL	DESCRIPTION				SAN	MPLE	ASSAYS
FROM	то		No.	From	То	Length %Rec	%Py %QV %Ser	Au g/t Au Check
551.00	603.50	 LAPILLI TUFF Chlorttic + sericitic bleached lapilli tuff. Massive to weakly foliated @ 30° tca with prominent clast elongation. Unit is comprised of 10% dark greenblack, chloritized, aphanitic, angular clasts from 2-3 mm to 3 cm wide (avg. 1 cm) floating in a very fine grained, light buff-green sericitized matrix. Ubiquitous, pervasive alteration. Numerous tight sericitic slips. Non-magnetic. Unit grades to a more hematitic lapilli tuff with same composition @ 566.50-576.30 m, then grades back to bleached sericitized tuff. Lower contact sharp, intact @ 30° tca. 552.80 - 553.00 Barren, irregular white cream-pink quartz ± albite veining within sericitized tuff. 553.50 1 cm wide, chlorite + sericite + minor quartz slip @ 30° tca. 555.00 Fault slip @ 25° tca. Moderately strong tight sericite slip with weak gouge. 556.00 - 556.15 Fault @ 40° tca. Sericite + quartz. 5 cm wide, milk white barren quartz vein bounded by sharp, tight sericite slips. 560.10 - 560.20 Fault @ 45° tca. Sericite + chlorite + quartz. 4-5 cm wide, quartz ± albite vein with strong internal chloritic suturing. Bounded by strong, tight chlorite + sericite slips. 578.70 - 578.85 Fault @ 60° tca. Sericite + chlorite + quartz/albite. 11 cm wide, barren white- cream quartz + albite vein with internal sericite lapills. 579.30 - 594.70 Hematitic lapilli tuff, massive, undeformed. Same composition as sericitic horizons. 583.00 Fault @ 30° tca. Chlorite + quartz. 1-2 cm wide, chlorite shear with angular brecciated quartz fragments, up to 0.5 cm wide, in a dark chloritic matrix. Non-mineralized. Little to no wall rock alteration. 	2375 2376 2377 2378 2379 2380	598.00 599.00 600.00 601.00 602.00 603.00	599.00 600.00 601.00 603.00 603.00 603.50	1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.50	5 5 10-20 Tr. Tr. 10-20 10-20 10-20 10-20	NIL NIL NIL NIL NIL NIL NIL

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INTE	RVAL	DESCRIPTION					SAM	IPLE				AS	SAYS
FROM	то		No.	From	То	Length %	6Rec	%Py	%Q\	%Ser		Au, g/t	Au,Check
603.50	606.00	MUDSTONE/GRAYWACKE Pristine, finely intercalated graywacke, mudstone. Mudstone beds are very irregular and in places are evidently ripped up into the graywacke horizons. Minor spotty sericite evident within graywackes.	2381 2382 2383	603.50 604.00 605.00	604.00 605.00 606.00	0.50 1.00 1.00						0.01 0.01 0.01	
606.00	608.50	CONGLOMERATE Pristine, massive polymictic pebble conglomerate. Comprised of 15-25% rounded polymictic pebbles, up to 10 cm wide, in a weakly sericitic graywacke matrix. Graywacke matrix shows some evidence of weak to moderately strong internal fracturing or crenulation with irregular wispy sericite.											
			2384	606.00	607.00	1.00						0.01	
		607.90 - 608.25 Trace spotty pyrite in matrix and some selective clast replacement.	2385	607.00	607.80	0.80						0.06	
		608.25 - 608.50 Quartz+ pyrite breccia vein @ 30° tca. Strong, sharp sericitic slip boundaries. Vein is dark blue-grey, brecciated quartz with strong internal fabric @ 30° which appears to be quartz + chlorite ± molybdenite smeared on tight hairline sutures. 1-3% pyrite occurs as small subhedral crystals and blebs on these hairline cracks. Remnant graywacke material especially jasper still evident within quartz flooding. Vein marks contact with lapilli tuff.	2386	607.80	608.70	0.90		1-3	20	0 10-15	Mo. Ch.	8.66	10.29
608.50	617.40	LAPILLI TUFF Massive, light green with 5-10% angular black chloritic, lapilli clasts, up to 3-4 cm wide, (avg. 0.5-1 cm), floating in a very fine grained pervasively sericitized, bleached matrix. Very minor spotty sub-euhedral pyrite evident in matrix. Lower contact marked by a 3 cm wide, chlorite + quartz fault @ 45° tca.											
		608.50 - 608.70 2-3% pyrite associated with narrow, blue-grey quartz breccia veinlets @ 30° tca, ≤ 0.5 cm wide, and minor spotty pyrite on irregular sericitic foliation. Mineralization dies rapidly at end of strongly foliated zone.	2387 2388 2389 2390 2391 2392 2393 2394	608.70 609.20 610.00 611.00 612.00 613.00 614.00 615.00	609.20 610.00 611.00 612.00 613.00 614.00 615.00 616.00	0.50 0.80 1.00 1.00 1.00 1.00 1.00 1.00		Tr. Tr. Tr. Tr. Tr.	Tr Tr Tr Tr	. 10-20 10-20 10-20 10-20 10-20 10-20 . 10-20 . 10-20		0.05 0.01 0.02 0.01 0.01 0.01 NIL	

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INTERVAL FROM TO		DESCRIPTION				SA	MPLE			AS	SAYS
FROM	TO		No.	From	To	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au, Check
			2395 2396	616.00 616.70	616.70 617.30	0.70 0.60	Tr. Tr.	Tr. Tr.	10-20 10-20	NIL NIL	
617.40	621.70	MUDSTONE/SILTSTONE Massive to finely laminated, light to dark green finely intercalated mudstone, siltstone. Bedding is quite variable and contorted from 0-45° tca. Moderate foliation developed @ 45° tca with sharp sericitic slips throughout. Very minor scattered pyrite in the form of small clots and semi-massive pyrite blebs. Lower contact is a sharp, chlorite + sericite shear @ 50° tca with minor barren, white quartz veinlets to 2-3 mm wide.	2397 2398 2399 2400 2401 2402	617.30 617.80 618.40 619.00 620.00 621.00	617.80 618.40 619.00 620.00 621.00 621.70	0.50 0.60 0.60 1.00 1.00 0.70	Tr. Tr. Tr. Tr.	1-2 1 Tr. 1	5-10 5-10 5-10	0.02 0.02 0.01 0.01 0.01 0.01	
621.70	639.60	LAPILLI TUFF Chloritic + sericitic and hematitic, massive to moderately well foliated with prominent clast elongation @ 45° tca. Quite variable in colour but is comprised of 10-15% angular heterolithic lapilli clasts, from 2-3 mm to 8 cm wide, in a very fine grained ash matrix. Clasts are 75% fine grained to spotted red-brown trachyte, 20% dark green and 5% light grey to buff coloured. Lower contact of unit is somewhat gradational over 0.5 metres.									
		621.70 - 623.00 Moderately sericitized and mottled in appearance with a few sericite + quartz slips.	2403	621.70	622.20	0.50	Tr.	Tr.	10	0.01	
		 622.90 1 cm wide, strong quartz + sericite slip @ 70° tca. 623.00 - 626.00 Unit grades to a red-brown, hematitic equivalent of tuff from 621.70 - 623.00. 625.15 Tight sericitic shear @ 55° tca. 625.15 - 625.60 Series of en echelon extensional ladder veins (sigmoidal) of barren quartz + albite. 625.00 - 633.50 Unit carries 3-5%, irregular barren quartz + albite veining, up to 2 cm wide. Multi-generational, crosscutting vein system within weakly sericitic to chloritic lapilli tuff. 634.00 - 634.30 1-3 mm, tight, chlorite slip @ 10° tca. 	2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422	622.20 623.00 624.00 625.60 625.60 626.10 627.00 629.00 631.00 631.00 633.00 633.00 633.50 634.00 635.00 635.00 637.50	623.00 624.00 624.90 625.60 626.10 627.00 632.00 630.00 633.00 633.00 633.50 634.00 635.00 635.00 637.50 637.50	0.80 1.00 0.90 0.70 0.50 0.90 1.00 1.00 1.00 1.00 1.00 1.00 0.50 0.5	Tr.	Tr. 3-4 1-2 2-3 1-2 2-3 1-2 3-5 1-2 1-2 Tr.	10 5 3-5 5 5 5-7 5-7 5-7 5-7 5-10 5-10 3-5 Tr. Hem Hem Hem Hem	0.01 NIL NIL NIL 0.02 0.01 0.01 NIL 0.01 NIL 0.01 NIL 0.01 NIL 0.01 NIL 0.01 NIL	

HOLE: AK-92-40

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INTE	RVAL	DESCRIPTION				SAN	<i>NPLE</i>	ASSAYS
FROM	то		No.	From	То	Length %Rec	%Py %QV %Ser	Au, g/t Au, Check
		 638.60 Fault @ 45° tca, ≤ 0.5 cm, strong, tight, dry, barren sericitic shear with moderate gouge developed. 638.70 Fault @ 45° tca. As above, sharp, strong sericite shear with moderate gouge. Broken, rubbly. 	2423	638.50	639.50	1.00 97	5-10	NIL
639.60	641.90	GRAYWACKE/MUDSTONE						
		639.60 - 640.15 Massive to weakly foliated, light grey-green, very fine grained graywacke to quartz arenite with trace spotty pyrite. Weak spotty sericite in groundmass.	2424	639.50	640.15	0.65	Tr. 1 3-5	0.01
		640.15 - 641.90 Intimately intercalated graywacke/mudstone with very fine bedding from 1-2 mm to 2 cm wide @ 35° tca. Mudstone horizons display strong tight sericitic parting giving	2425 2426	640.15 641.00	641.00 641.50	0.85 0.50	1 10-20 5-10	0.02 0.04
		641.60 - 641.90 Dark blue-grey quartz stringers, up to 1 cm, are evident parallel to bedding schistosity which carry trace to 1% very fine grained pyrite.	2427	641.50	642.00	0.50	Tr. 1-2 10-20	0.04
641.90	715.00	GRAYWACKE	2429	642.00	642 70	0.70	T- 26	0.02
		graywacke to pebbly graywacke with scattered angular to subrounded mudstone chips and the occasional pebble clast in places. Unit displays a	2429 2430	642.70 643.50	643.50 644.00	0.80 0.50	11. 5-5	0.02 0.01 0.01
		otherwise very clean, undeformed and unaltered.	2431 2432 2433	654.00 655.00 656.00	655.00 656.00 656.80	1.00 1.00 0.80	Tr. 2-3 Tr. 3-5 Tr. 3-5	0.01 0.03 0.01
		657.40 - 665.00 Moderately well foliated @ 40° tca with abundant irregular wispy sericite partings developed, giving unit an overall striped appearance. Section also carries minor dark hairline guartz + chlorite ± pyrite seams. ≤ 2 mm	2434 2435 2436 2437	656.80 657.40 658.00 659.00	657.40 658.00 659.00 660.00	0.60 0.60 1.00 1.00	Tr. 3-5 Tr. 5-7 Tr. Tr. 5-7 Tr. Tr. 5-7 Tr. 5-7	0.01 0.01 0.01 0.02
		wide, scattered throughout. These stringers tend to cross- cut the sericite foliation @ 10-35° tca. 4.5 cm wide, barren white ouartz yeined bounded by tight	2438	660.00	661.00	1.00	Tr. 1-2 5-7	0.01
		sericite slips @ 75° tca. 662.10 Fault @ 65° tca. Sericite + quartz. Strong sericitic mud	2439 2440	661.00 662.00	662.00 662.70	1.00 0.70	Tr. Tr. 5-7 Tr. 1-2 5-10	0.01 0.01
		gouge slip with a 2-3 cm wide, barren white quartz + albite vein and a 3 mm wide, blue quartz veinlet with trace pyrite \pm galena.	2441 2442 2443 2444	662.70 663.50 664.50 665.50	663.50 664.50 665.50 666.00	0.80 1.00 1.00 0.50	Tr. 3-5 Tr. 2-3 5-7 3-5 2-3	0.01 0.01 NIL 0.01

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INTE	RVAL	DESCRIPTION				SAM	IPLE	ASSAYS
FROM	то		No.	From	То	Length %Rec	%Py %QV %Ser	Au, g/t Au, Check
		 668.10 Fault @ 15° tca. Sericite + chlorite. Tight, strong slip with weak to moderate gouge development. Minor, barren quartz stringers and pods proximal to slip. 691.90 - 692.20 Quartz + sericite vein @ 30° tca. Grey-white, fractured quartz vein with irregular sericite internally. Upper contact is a 1 mm wide, blue-grey, mud gouge slip possibly with smeared sulphides otherwise vein is barren. 692.20 - 692.35 Quartz breccia vein. White angular fragmented quartz clasts up to 3 cm wide, in a grey-green, quartz ± chlorite matrix. Lower contact is also a tight sericite slip with a 0.5 cm wide, white quartz + albite vein with minor spotty pyrite + chalcopyrite. No visible wall rock mineralization. 692.35 - 716.40 Fault @ 50° tca. Sericite + quartz + calcite. 10 cm wide, 	2445 2446 2447 2448 2449 2449 2450 2459	689.00 690.00 691.00 691.90 692.40 693.00 694.00	690.00 691.00 691.90 692.40 693.00 693.00	1.00 1.00 0.90 0.50 0.60 1.00 1.00	Tr. Tr. 50 10-15 Cpy	0.02 0.01 0.01 0.01 0.01 NIL 0.01
715.00	716.40 716.40	 vuggy, pink quartz + calcite vein bounded by sharp, tight sericite + mud slip planes. CONGLOMERATE Unit grades from fine grained graywacke to a pristine polymictic pebble conglomerate. E O. H. 				, ,		
		<u>Additional Assays</u> <u>Sample No. Pb (ppm) Zn (ppm) Te (ppm)</u> 2386 134 111 1						

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INTE	RVAL	DESCRIPTION	SAMPLE					AS	SAYS			
FROM	то		No.	From	То	Length	%Rec	%Py	%QV 9	%Ser	Au, g/t	Au,Check
FROM	то	Abbreviations Used in Sample Descriptions Tr. Trace Gal Galcna Cal Calcite Sil Silicic or Silicified Mo Molybdenite Ch. Chlorite Hem Hematite Cpy Chalcopyrite	No.	From	Το	Length	%Rec	%Ру 9	₩QV S	%Ser	Au, g/t	Au,Check

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PROPERTY TOWNSHIP	Amalgamated Kirkland Teck	DATE LOGGED LOGGED BY	February 27, 1992 - March 16, 1992 Mark Masson	EASTING NORTHING	7599.7 10007.4	Depth	Method	Azimuth	Dip
CLAIM No. STARTED COMPLETED	L 491183, L 491182 February 26, 1992 March 15, 1992	DRILLED BY CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Heath & Sherwood Kirkland Lake Warehouse B.M.C.I. Sperry Sun	ELEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	337.3 Northland Technical 916.0 metres NQ	Note:	See table at	end of sumn surveys	ary log
PURPOSE	To test "103" structure a	t 600 m. level.	1.B		-				
COMMENTS	"102" structure @ 754.8("103" structure @ 791.3(0 - 757.00, 2.2 m. 0 - 827.80, 36.5 m.	SIGNED BY (W. Benham)					

	SUM	MARY LOG		ASSAY SUMMARY				
INTERVAL	DESCRIPTION	INTERVAL	DESCRIPTION	INTERVAL LENGTH	AVERAGE			
From To		From To		From To in metres	Au g/t			
0.00 4.10	CASING		Trace pyrite, galena.	810.00 811.00 1.00	0.19			
4.10 22.40	BLOCK TUFF		441.00 - 451.20 Quartz + albite stockwork. Trace					
22.40 30.20	ASH TUFF		pyrite, galena.	826.00 827.00 1.00	0.14			
30.20 54.80	CONGLOMERATE	525.00 580.70	CONGLOMERATE/ASH TUFF					
	54.60 - 54.80 Fault breccia @ 35° tca.	580.70 606.00	LAPILLI TUFF					
54.80 56.80	SYENITE PORPHYRY		Chloritic.					
56.80 57.50	ASH TUFF	606.00 627.90	LAPILLI TUFF/GRAYWACKE/CONGLOMERATE					
	57.10 - 57.50 Fault zone @ 50° tca.	627.90 702.70	CONGLOMERATE					
57.50 63.90	CONGLOMERATE		689.40 - 689.50 Fault @ 60° tca.					
	Sheared (@ 35-45° tca.		694.20 - 694.30 Fault @ 45° tca.					
63.90 68.00			700.00 - 702.70 Sheared @ 45° tca.					
(0.00 0.00	Altered, hematitic.	702.70 760.00	ASH/LAPILLI TUFF					
68.00 94.30	ASH TUFF		702.70 - 710.00 Chloritic fractures, foliated @ 40°					
94.30 134.50	LAPILLI TUFF/ASH TUFF		tca.					
134.50 174.30	ASH TUFF		703.20 • 703.30 Fault @ 40° tca.					
174.30 199.40	LAPILLI TUFF		743.35 - 744.45 Fault @ 45-50° tca.					
199.40 204.50	MUDSIUNE/SILISIONE/GRAYWACKE/LAPILLI		754.80 - 756.40 Sericitic foliated zone @ 30° tca.					
204.50 205.00			756.40 · 757.00 Deformed, silicitied zone, 5-7%					
204.50 305.00	GRATWACKE/CONGLOMERATE	7/0 00 771 00	quartz veins, trace pyrite.					
305.00 330.40	ADD TUFF CONCLONED ATE	/60.00 //1.00	LAPILLI TUFF/GRAYWACKE/SILTSTONE					
330.40 323.00	277 60 295 20 Outstand Lathia start		Locally mottled, sericitic and bleached.					
	511.50 - 585.50 Quartz + alone stockwork.	//1.00 /91.30	CONGLOMERATE					
4	I Contraction of the second seco	1			1			

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TOWNSHIP	Amaigamated Kirkland Teck	DATE LOGGED LOGGED BY	February 27, 1992 - Marc Mark Masson	h 16, 1992	EASTING NORTHING	7599.7 10007.4	Depth	Method	Azimuth	Dip	٦
STARTED COMPLETED	February 26, 1992 March 15, 1992	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake Warehouse B.M.C.I. Sperry Sun	;	ELEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	337.3 Northland Technical 916.0 metres NQ	Note:	See table at for downhole	end of sumn surveys	ary log	
PURPOSE	To test "103" structure a	t 600 m. level.				-					
COMMENTS	"102" structure @ 754.80 "103" structure @ 791.30) - 757.00, 2.2 m.) - 827.80, 36.5 m.	SIGNED BY —	(W. Benham)							

	SUM	MARY LOG		ASSAY SUMMARY				
INTERVAL From To	DESCRIPTION	INTERVAL From To	DESCRIPTION	INTERVAL From To	LENGTH in metres	AVERAGE Au g/t		
791.30 806.00 806.00 810.00 810.00 916.00	 785.10 - 785.20 Fault @ 65° tca. GRAYWACKE Locally sericitic, pyritic, silicified. LAPILLI TUFF Sericitic. CONGLOMERATE 816.50 - 822.20 Sericitic, foliated @ 40-50° tca. Trace pyrite, 1-2% quartz veins. 822.20 - 823.90 Shear zone @ 35° tca. Trace-1% pyrite, 1-3% quartz veins. Trace chalcopyrite. 823.90 - 827.80 Weakly foliated, moderately sericitic. Trace pyrite. 874.20 - 875.30 Foliated zone @ 40° tca. Trace pyrite. 							
916.00	Е. О. Н.							

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PROPERTY TOWNSHIP	Amalgamated Kirkland Teck	DATE LOGGED LOGGED BY	February 27, 1992 - March 16, 1992 Mark Masson	EASTING NORTHING	7599.7 10007.4	Depth	Method	Azimuth	Dip
STARTED COMPLETED	February 26, 1992 March 15, 1992	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake Warehouse B.M.C.I. Sperry Sun	LEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	337.3 Northland Technical 916.0 metres NO	Note:	S ce table be downhole su	low for all rveys	
PURPOSE	To test "103" structure a	t 600 m. level.			-				
COMMENTS	"102" structure @ 754.80 "103" structure @ 791.30) - 757.00, 2.2 m.) - 827.80, 36.5 m.	SIGNED BY (W. Benham)						

				SUM	MARY LOG	ASSAY SUMMARY									
INTERVAL From To		DESCRII	PTION		INTERVAL From To		DESCRI	I F	NTERVAI From To	LENC)TH res	AVE A	RAGE u g/t		
	Depth	Method	Azimuth	Dip		Depth	Method	Azimuth	Dip		Depth	Method	Azimu	th	Dip
	Collar	Compass	341	75		672.0	Sperry Sun	347	69						
	11.0	Sperry Sun	354(?)	74.5		703.0	Sperry Sun	347	68						
	56.5	56.5 Sperry Sun 354(?) 74				745.0	Sperry Sun	349	66						
	154.0	36.5 Openry our 354(1) 14 154.0 Sperry Sun 190(?) 71				809.0	Sperry Sun	350	64						
	215.0	Sperry Sun	352(?)	73		849.0	Sperry Sun	347	63.5						
	305.0	Sperry Sun	349	72		895.0	Sperry Sun	347	63						
	382.0	Sperry Sun	353	72											
	437.0	Sperry Sun	349	72											
	500.0	Sperry Sun	349	71.5											
	541.0	541.0 Sperry Sun 348 71										<u></u>	1		
	602.0 Sperry Sun 351 70											†			

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INTE	RVAL	DESCRIPTION				SAN	MPLE	ASSAYS
FROM	TO		No.	From	То	Length %Rec	%Py %QV %Ser	Au, g/t Au, Check
0.00 4.10	4.10 22.40	OVERBURDEN BLOCK TUFF						
		Massive, undeformed, chloritic coarse lapilli block tuff comprised of 5-15% angular to sub-rounded dark red syenite/ trachyte clasts, up to 7 cm wide, in a fine grained dark green-black ash matrix. Clasts are fine grained to strongly porphyritic. Strong pervasive magnetics. Top section somewhat rubbly and broken with ankerite staining. Lower contact gradational over 1 metre.						
		 7.90 - 8.10 Rubbly, broken section with strong ankerite development on broken fragments. 8.55 - 8.90 Fault @ 30° tca. Chlorite + sericite + ankerite. Strong chlorite + sericite slips and rubbly broken core. Strong ankerite (limonitic) staining. 						
		10.00 Fault @ 30° tca. Chlorite + sericite + ankerite. Broken rubbly section with moderately strong sharp slips and a weak to moderate ankerite staining.						
		11.20 - 14.50Tight, strong, chlorite slip/fracture @ 0-10° tca.22.20Fault @ 30° tca. Chlorite + sericite ± ankerite. Moderately strong, open fault with weak ankeritic staining.)		
22.40	30.20	ASH TUFF Massive fine grained, dark green to black ash tuff. Undeformed, unaltered and equivalent in composition to above block tuff. Comprised of small subrounded red syenite/trachyte ash and fine lapilli clasts, up to 5 mm wide, in a very fine grained dark chloritic ash matrix. Strong magnetics. Lower contact sharp @ 55° tca.						
30.20	54.80	CONGLOMERATE Massive, pristine, polymictic pebble-cobble conglomerate. Tightly packed with 40-50% poorly sorted, well rounded pebbles, up to 15 cm wide. Groundmass is very dark green and chloritic with a very low quartz content (<10%) and may contain a certain amount of ash. Of notable interest is the fact that this conglomerate although it contains quartz, jasper and porphyry clasts, it also contains a high percentage of trachytes, red-brown to grey and volcanics which are strongly magnetic. This gives the unit an overall strong, patchy magnetics as opposed to the typically non-magnetic, quartz-rich conglomerates.						

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INTE	RVAL	DESCRIPTION			ASSAYS						
FROM	то		No.	From	То	Length %F	Rec	%Py %QV	%Ser	Au, g/t	Au,Check
		 45.10 - 45.40 Fault @ 30° tca. Chlorite + quartz + ankerite. Irregular, 10-12 cm wide, barren quartz + ankerite vein bounded by 1 mm wide sharp tight chlorite slip planes. 50.85 - 50.90 Fault @ 35° tca. Chlorite + quartz + albite. Sharp tight chlorite slip at 50.9 m. Irregular, milk-white to grey, quartz + albite veining with strong internal chloritic suturing. 54.60 - 54.80 Strong fault breccia @ 35° tca. Chlorite + quartz + ankerite. Very strong chloritic shear to fault breccia with broken angular quartz and rusty ankeritic stained rock fragments, up to 1 cm wide, in a dark chloritic groundmass. 	2460 2461 2462 2463	52.00 53.00 53.50 54.00	53.00 53.50 54.00 54.80	1.00 0.50 0.50 0.80	95	3-5	Chl.	0.03 0.01 0.01 NIL	
54.80	56.80	SYENITE PORPHYRY Massive, dark brick-red syenite comprised of 5-7% subhedral plagioclase laths, up to 0.50 cm wide, floating in an aphanitic red groundmass. Phenocrysts are typically dusted with a red hematitic coating. Unit is cut by 2-3% quartz stockworking veinlets up to 0.50 cm wide. Moderately magnetic (possibly trachytic?) Lower contact somewhat obscured and irregular, possibly bedding parallel @ 40° tca.	2464 2465	54.80 55.80	55.80 56.80	1.00 1.00		2-3 2-3		0.01 NIL	
56.80	57.10	ASH TUFF Dark green to buff-brown, fine to medium grained ash tuff cut by 2-3% irregular quartz + ankerite veinlets.	2466	56.80	57.60	0.80	90	5-10	Chi.	NIL	
57.10	57.50	FAULT ZONE @ 50° TCA. Chlorite + quartz + ankerite. Broken rubbly section with strong chloritic shearing and slips. 10-15% irregular quartz + ankerite veining. Barren, non-mineralized.									
57.50	63.90	CONGLOMERATE Strongly foliated to sheared @ 35-45° tca, polymictic pebble conglomerate. Highly chloritic with numerous tight chloritic slips throughout. Matrix is notably foliated to crenulated. Contains 3-4% barren, irregular white quartz \pm albite veins, up to 2-3 cm wide.	2467 2468 2469 2470 2471 2472 2473	57.60 58.40 59.00 60.00 61.00 62.00 63.00	58.40 59.00 60.00 61.00 62.00 63.00 63.90	0.80 0.60 1.00 1.00 1.00 1.00 0.90		2-3 1-2 2-3 3-4 2-3 1-2 1-2		0.01 NIL 0.01 0.01 NIL 0.02 NIL	

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INTERVAL		DESCRIPTION	SAMPLE ASSAYS							SAYS
FROM	ТО		No.	From	То	Length %Rec	%Py %QV	%Ser	Au, g/t	Au,Check
63.90	68.00	LAPILLI TUFF Chloritic, sericitic, hematitic, deformed, altered lapilli tuff.								
		63.90 - 64.10 Fault @ 30° tca. Chlorite + sericite + quartz. Strong chlorite + sericite fault zone with banded to brecciated quartz veins and 5% fragments in a dark chloritic groundmass.	2474	63.90	64.50	0.60	3-4	10	0.01	
		 64.10 - 68.00 Tuff is highly variable in colour and texture due to varying degrees of alteration and deformation, proximal to faulting. 64.10 - 65.00 Light green, sericitic with strong chloritic slip @ 64.45 m. 65.00 - 66.00 Red-purple hematitic tuff. 	2475	64.50	65.00	0.50	2-3	5-7	NIL	
		66.00 - 66.50 Red-purple to yellow-green, mixed hematite + sericite	2476	65.00	66.00	1.00	1-2	3-5	NIL	
		66.30 - 66.40 Fault @ 55° tca. Sericite ± ankerite. Moderately strong ankerite staining on a dry broken sericitic shear.	2477	66.00	67.00	1.00	1-2	3-5	0.04	
68.00	94.30	ASH TUFF Chloritic, massive to poorly bedded @ 30-40° tca pristine, medium to dark grey-green, fine grained ash tuff comprised of 10-15% fine grained trachyte clasts, up to 2-3 mm wide, in a very fine grained mafic ash groundmass. In part intercalated with narrow lapilli tuff horizons of same composition, up to 0.50 m wide. Pervasive moderate to strong magnetics. In places bedding defined by narrow magnetite bands, 1-3 mm wide. Lower contact gradational over 1-2 m.	2478	67.00	68.00	1.00			0.01	
94.30	134.50	LAPILLI TUFF/MINOR ASH Massive, pristine, undeformed, unaltered heterolithic tuff comprised of 3- 7% angular to subrounded, heterolithic trachyte clasts from 1-7 cm (avg. 2-3 cm) in a dark grey-green ash matrix. Clasts are red-brown, light grey, dark green and buff fine grained to spotted trachyte. Pervasive moderate to strong magnetics. Partly intercalated with ash tuff horizons, up to 2 m. wide.								
		 104.65 Fault @ 55° tca. Sericite + quartz + albite. Strong, tight sericitic slip with a 2-3 mm wide, milk white quartz albite stringer. 117.90 Fault @ 45° tca. Chlorite + quartz + albite. Tight hairline chloritic slip with a 1 cm wide, white-pink quartz + albite veinlet. 								

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INTERVAL		DESCRIPTION	SAMPLE						ASSAYS			
FROM	то		No.	From	То	Length	%Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		 118.25 Fault @ 45° tca. Chlorite + quartz + albite. Tight chloritic slip with 2 cm wide, brecciated barren quartz + albite vein within a dark chloritic groundmass. 125.50 - 128.70 Moderately well bedded ash tuff horizons @ 30-40° tca. 133.75 - 133.80 Fault @ 50° tca. Chlorite + sericite + quartz + calcite. Tight strong 1 mm wide chlorite slip with a 3 mm wide, quartz + calcite veinlet on wall. 133.80 - 134.25 Tuff displays a patchy pervasive bleaching (sericitization) gradually grading to dark green, chloritic tuff. Somewhat mottled texture. 		- Edit de Loca (fonder		X						
134.50	174.30	ASH TUFF Chloritic, massive to poorly bedded, dark grey-green to grey-brown, somewhat variable from very fine to medium grained ash tuff. Typically strongly magnetic and in places small (≤ 1 mm) primary magnetite grains (1%) are evident (ie 137.0-138.0). Comprised of 3-10% fine grained, ash matrix. Massive, non-descript, pristine. Lower contact of unit is sharp bedding contact @ 40° tca.										
		 139.30 - 139.60 Fault @ 20° tca. Chlorite + sericite + quartz + albite. Two strong chloritic fault slips with 1-2 cm wide, white- pink, quartz ± albite veining @ 139.3 and 139.6 m. Internal to slips, unit is strongly deformed, fractured and sericitized. Cut by 2% quartz + chlorite veinlets, up to 2 mm wide. Barren, non-mineralized cross-fault. 141.40 - 142.00 Fault @ 15° tca. Chlorite + sericite + quartz ± albite. Strongly deformed, sericitized ash tuff with late, barren quartz pods and stringers, bounded by two sharp chloritic slip planes. 										
174.30	199.40	 LAPILLI TUFF Massive, pristine, light to dark grey-green. Quite variable with 2-7% subangular lapilli clasts from 0.50-5 cm wide, pink-red, light grey and dark green volcanics in a very fine grained ash groundmass. Patchy strong magnetics. Lower contact of unit is intact sedimentary type @ 55° tca. 180.45 - 181.00 Fault zone @ 45° tca. Sericite + chlorite + quartz. Quite strongly deformed lapilli tuff with 10-15% irregular wispy sericitic foliation. Upper and lower contacts are strong, 	2479 2480 2481 2482 2483 2484	178.50 179.00 179.50 180.40 181.20 182.00	179.00 179.50 180.40 181.20 182.00 182.50	0.50 0.50 0.90 0.80 0.80 0.50		Tr.	Tr. Tr. Tr. 3-4 Tr.	2-3 2-3 2-3 10-15 Tr.	NIL 0.01 0.01 0.01 0.01 0.01	

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INTERVAL		DESCRIPTION	SAMPLE								ASSAYS	
FROM	ТО		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check	
		sharp chlorite + sericite shears with barren quartz + albite veinlets, up to 5 cm wide. Dry, barren shear.	2485 2486 2487 2488 2489	195.70 196.40 197.00 198.00 198.90	196.40 197.00 198.00 198.90 199.40	0.70 0.60 1.00 0.90 0.50	Tr1	2-3 1	Tr. 10-20	0.01 NIL NIL NIL NIL		
199.40	204.50	MUDSTONE/SILTSTONE/GRAYWACKE/LAPILLI TUFF Massive to finely laminated and well bedded @ 55° tca. Lower contact gradational over 1 metre.										
		 199.40 - 203.10 Finely intercalated mudstone/siltstone/ graywacke with bedding horizons from 0.50-20 cm wide. All units are undeformed and unaltered, pristine. 203.10 - 203.80 massive, grey-green lapilli tuff horizon with trace, sub-euhedral pyrite clots, up to 0.50 cm wide, within light green, spotted trachyte clasts. 	2490 2491 2492 2493 2494 2495	199.40 200.00 201.00 202.00 203.00 203.80	200.00 201.00 202.00 203.00 203.80 204.50	0.60 1.00 1.00 1.00 0.80 0.70	Tr. Tr.	Tr. Tr.	3-4	0.01 0.01 0.01 0.01 0.01 NIL		
204.50	305.00	GRAYWACKE Massive to poorly bedded, fine grained, light to dark grey-green. Occasionally carries dispersed angular mudstone chips and locally grades to pebbly graywacke/conglomerate. Lower contact of unit is gradational over 1-2 metres.				•	-					
		 204.50 - 251.00 Very clean, pristine with a weak pervasive, spotty sericite. 204.50 - 215.00 Unit is moderately altered, fractured and contains 1-3% irregular anastomosing hairline sericitic fracturing and 1-3% quartz ± albite + chlorite stringer veins, up to 3 cm wide, at all angles tca. Occasional minor pyrite on veins. 212.35 - 212.40 Fault @ 30° tca. Chlorite + quartz. 4 cm wide, barren, white quartz ± albite vein bounded by tight strong chlorite slips. 	2496 2497 2498 2499 2500 3001 3002 3003 3004 3005 3006 3007 3008	204.50 205.00 206.00 207.00 208.00 209.00 210.00 211.00 212.00 212.50 213.00 214.00	205.00 206.00 206.50 207.00 209.00 210.00 211.00 212.00 212.50 213.00 214.00 215.00	0.50 1.00 0.50 0.50 1.00 1.00 1.00 1.00	Tr. Tr. Tr. Tr. Tr.	2-3 2-3 Tr. 1 1 1 1 2-3 Tr. 1 1	1-2 2-3 2-4 1-2 2-3 1-2 2-3 1-2 1-2 2-4 1-2 2-3 1-2	0.01 NIL 0.01 0.01 NIL 0.08 0.01 0.01 NIL 0.01 NIL 0.01		
			3009	225.00	226.00	1.00			3-5 Fuch.	0.01		

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INTERVAL		DESCRIPTION	SAMPLE								ASSAYS	
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	·	Au, g/t	Au,Check
		 226.20 - 226.40 Foliated sericitized graywacke with 10-15% quartz ± albite veining @ 35° tca. Quartz veins contain minor patchy pyrite and trace blue-grey galena (?) often needle-like to small masses. 227.50 - 227.90 Moderately foliated graywacke @ 20° tca with 3% quartz ± albite veining, up to 2 cm wide, with trace, spotty pyrite. 229.10 2 cm wide quartz + albite + pyrite + galena vein @ 55° tca. Trace pyrite and 0.50% blue-grey galena on hairline fractures within vein and on vein wall. 232.40 - 234.90 Polymictic pebble conglomerate horizon. Weakly sericitic, massive with some fuchsitic clasts evident. Gradational contacts. 243.50 - 246.90 Massive, undeformed, polymictic pebble conglomerate horizon comprised predominantly of light buff-green mudstone and volcanics which are frequently fuchsitic. Moderate pervasive sericite throughout. 246.90 - 247.70 Aphanitic, light green siltstone horizon. Massive, nonbedded, quite soft and sericitic. 250.90 Fault @ 20° tca. Sericite + chlorite + quartz + albite. Sharp, tight sericitic slip with irregular barren quartz + albite veining adjacent to slip wall. 258.00 - 261.00 Graywackes are moderately well bedded @ 30° tca. Marked by 1-3 mm wide, primary pyrite bands. 271.25 Fault @ 55° tca. Chlorite + sericite + quartz. 2 cm wide, quartz + chlorite breccia vein with white, angular quartz fragments floating in a dark chloritic groundmass bounded by tight chloritic slips. Non-mineralized. 	3010 3011 3012 3013 3014 3015 3016	226.00 226.50 227.00 227.50 228.00 229.00 229.50	226.50 227.00 227.50 228.00 229.00 229.50 230.00	0.50 0.50 0.50 0.50 1.00 0.50 0.50	Tr. Tr. Tr.	5 Tr. Tr. 1 1-2	5-10 3-5 3-5 3-5 2-3 3-5	Gal. Gal.	0.01 0.01 0.02 0.02 0.01 0.01	
305.00	336.40	 ASH TUFF Massive, fine to very fine grained ash tuff. Dark grey-green to green-brown. Undeformed, unaltered, non-descript. Mixed unit which contains a few minor lapilli clasts and sedimentary clasts of aphanitic mudstone. Pervasive, moderate magnetics. 325.00 - 336.40 Mixed zone of intercalated ash tuff, lapilli tuff, mudstone and graywacke. Contacts are gradational and somewhat subjective. Pristine. 334.70 - 336.40 Well foliated to weakly sheared with 5-10% wispy sericitic foliation and 1-2% milk- white quartz + albite veining. 	3017 3018 3019 3020 3021	333.00 334.00 334.70 335.50 336.00	334.00 334.70 335.50 336.00 336.50	1.00 0.70 0.80 0.50 0.50	Tr	. 1-2 Tr. Tr.	5-7 5-7 5-7		NIL NIL 0.01 NIL 0.02	

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INTERVAL		DESCRIPTION				SAM	IPLE			ASSA	YS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t A	u.Check
336.40	580.70	CONGLOMERATE Massive, pristine, unaltered polymictic pebble-cobble conglomerate, with a fine grained chloritic graywacke groundmass. Classic jasperoidal Timiskaming conglomerate somewhat variable from clast to matrix supported, poorly sorted, with clasts ranging from 0.50-10+ cm wide, including jasper, quartz, volcanics, sediments and intrusives. Lower contact	3022 3023	336.50 337.00	337.00 338.00	0.50 1.00				0.02 0.01	
		of unit is a sharp, tight (1-2 mm) sericitic slip @ 40° tca. 367.40 - 367.60 Quartz + albite + sericite vein @ 15° tca. 4 cm wide, white quartz + albite vein with strong, internal sericitic slips and minor spotty pyrite. 372.20 - 372.30 Fault @ 50° tca. Sericite + chlorite. Two strong, sharp, tight (1-2 mm) muddy slips at 327.2 and 327.3. Internally unit is fractured "crack and seal" with hairline chloritic	3024 3025 3026 3027 3028	366.00 366.80 367.30 367.80 368.30	366.80 367.30 367.80 368.30 369.00	0.80 0.50 0.50 0.50 0.50 0.70	Tr.	Tr. 10-15	5-10	0.01 0.01 0.05 0.01 NIL	
		 377.50 - 385.30 Stockworked series of white quartz pods. 377.50 - 385.30 Stockworked series of white quartz + albite veins @ 0-15° tca. Veins are frequently associated with tight, sericite slips or fractures and internally display strong sericitic lamellae. These veins carry minor spotty pyrite, pseudomorphing a blue-grey often acicular mineral (galena?). These mineral growths occur on hairline fractures or cleavage planes within the quartz + albite and often at right angles to the vein wall. 	3029 3030 3031 3032 3033 3034 3035 3036 3037 3038 2039	377.00 377.50 378.20 379.00 379.50 380.20 381.00 382.00 383.00 383.80 384.50	377.50 378.20 379.00 379.50 380.20 381.00 382.00 383.00 383.80 383.80 384.50 285.50	0.50 0.70 0.80 0.50 0.70 0.80 1.00 1.00 0.80 0.70	Tr. Tr. Tr. Tr. Tr. Tr. Tr. Tr.	3 1 7-10 5-7 Tr. Tr. 1-2 2-3 1-2	3-5 1-2 3-5 2-3 1-2 1-2 1-2 1-2	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01	
		 418.00 - 418.15 Fault @ 35° tca. Chlorite + sericite + quartz + albite. 10 cm wide, white-pink quartz + albite vein with strong internal sericite slips. Bounded by sharp, tight chlorite + sericite slip planes. Barren, non-mineralized. 441.00 - 451.20 Unit is cut by 1% milk-white, quartz + albite veins and pods (tension-filling) up to 3 cm wide (avg 0.50 cm) which frequently carry trace pyrite ± galena(?). This sulphide mineralization grows along cleavage and as small clots within veins. Veins are widely spaced and are frequently discontinuous and appear to be open-space or gash-fillings. Very weak system. 	3039 3040 3041 3042 3043 3044 3045 3046 3047 3048 3049	441.00 441.50 442.00 443.00 444.00 445.00 445.60 445.60 446.30 446.30	441.50 442.00 443.00 444.00 445.00 445.60 446.30 446.30 446.30 446.30 446.30	1.00 0.50 0.50 1.00 1.00 1.00 0.60 0.70 0.70 1.00 0.60	Tr. Tr. Tr. Tr. Tr. Tr. Tr.	1 2-3 Tr. 1 Tr. 2-3 Tr. 1 2-3	1 2-3 Tr. 2-3 Ga 2-3 Ga	0.09 0.01 0.10 0.01 0.01 NIL NIL NIL 1. NIL 0.11 0.01 1. 0.01	
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INTE	RVAL	DESCRIPTION					SAM	IPLE			AS	SAYS
FROM	то		No.	From	То	Length 9	%Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		 493.45 - 493.55 Fault @ 70° tca. Chlorite + sericite + quartz ± calcite. Moderately strong, schistose zone with 1-3% white quartz + calcite veinlets and pods within a chlorite + sericite schist. 503.00 Fault @ 30° tca. Chlorite + sericite + quartz ± calcite. 	3051 3052 3053	449.50 450.00 451.00	450.00 451.00 451.50	0.50 1.00 0.50		Tr.	Tr. 1 Tr.	1-2	0.01 0.03 0.01	
		 2-3 cm wide, white-pink laminated quartz ± calcite vein, with strong internal chlorite slip. Barren. 508.70 - 509.40 Fault @ 0-10° tca. Chlorite ± quartz + calcite. Strong, tight irregular chlorite slip with 0.50-2 cm wide, white-pink quartz + calcite vein on slip wall. 525.00 - 560.00 Unit becomes quite dark and contains more volcanic trachyte-type clasts and the matrix becomes less quartz-rich and more ash-rich. This section therefore displays patchy strong magnetics. 571.30 - 571.70 3-5 cm wide, white-pink quartz ± albite vein with internal sericite lamellae @ 15° tca. Barren, non-mineralized. 573.80 - 573.90 Fault @ 35° tca. Chlorite ± quartz. 1-3 mm wide, strong, tight chlorite mud gouge slip with minor quartz pods and stringers adjacent to slip. Unit is moderately well foliated from 563.2 to 574.8 meters. 										
580.70	627.90	 LAPILLI TUFF Massive, dark green, quite soft and chloritic, heterolithlc lapilli tuf comprised of 5-10% poorly sorted, angular lapilli clasts up to 3-4 cm (av, 1 cm) wide, in a very fine grained, dark green, chloritic ash matrix. Clast are light grey-green, very fine grained, light buff-grey and pink-red spotted trachytes in decreasing abundance. Unit displays a weak to moderate pervasive hematization. 606.00 - 627.90 Facies change zone. Gradual mixing of lapilli tuff with graywacke and polymictic pebble conglomerates. Star seeing well rounded, polymictic pebble clasts scattered within the predominantly lapilli tuff and narrow graywacke/conglomerate horizons up to 1 m wide. Al units are massive, undeformed and chloritic. 										

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INTE	RVAL	DESCRIPTION				SAN	IPLE			AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
627.90	702.70	CONGLOMERATE Massive, undeformed, dark chloritic, polymictic pebble-cobble conglomerate. Quite coarse with well rounded clast, up to 25 cm wide, very poorly sorted, tightly packed and framework-supported. Lower contact appears to be sharp @ 45° tca but is somewhat obscured due to deformation and alteration.									
		 627.90 - 628.45 Diabase (silfstone?). Massive, very fine grained to aphanitic, dark green and non-magnetic. Upper contact very irregular @ 5-10° tca. Lower contact also somewhat irregular with a 1 cm wide calcite vein. 678.50 Fault @ 40° tca. Chlorite + sericite + quartz + calcite. 2 cm wide, white-pink, quartz + calcite veining with internal sericite suturing and bounded by sharp, tight 									
		 chloritic slips. 689.40 - 689.50 Fault @ 60° tca. Chlorite + sericite + quartz + calcite. Strong, broken rubbly section. Moderate to strong mud gouge developed in chlorite slips. 2-3% white-pink, barren quartz + calcite veins up to 1 cm wide. 694.20 - 694.30 Fault @ 45° tca. Chlorite + sericite + quartz + calcite. 4 cm wide, grey-white, barren quartz + calcite vein with 	3054	699.00	700.00	1.00				0.01	
		 strong, internal sericitic lamellae. Bounded by sharp tight chlorite + sericite slips with weak to moderate gouge developed. 700.00 - 702.70 Conglomerates are moderately well foliated and contain numerous, strong, tight (1-2 mm) chlorite slip planes and 1-2 cm wide, sericitic, schistose zones @ 45° tca. 	3055 3056 3057	700.00 701.00 702.00	701.00 702.00 702.70	1.00 1.00 0.70				0.01 0.02 0.02	
702.70	771.00	ASH/LAPILLI TUFF Chlorite + sericite \pm hematite. Unit is quite variable and inhomogeneous. Ranges from very fine grained ash to tuff to lapilli tuff with 3-5% scattered lapilli clasts. Colour varies from light green to brown to purple, due to an overall patchy sericite alteration. Unit contains 2-3% white, barren quartz + calcite veins from 1 mm to 2 cm wide at various core angles. Frequently the unit is bleached and light brown proximal to these veinlets.									
		702.70 - 710.00 Massive to locally moderately foliated and displays a strong "crack and seal" texture with fracturing infilled by dark green chlorite. These fractures are hairline to 3 mm wide at multiple core angles. Interstitial to these cracks,	3058 3059 3060 3061	702.70 703.50 704.00 705.00	703.50 704.00 705.00 706.00	0.80 0.50 1.00 1.00				0.01 NIL NIL NIL	

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INTERVAL	DESCRIPTION	SAMPLE No From To Length % Rec. % Py % OV % Ser				AS	SAYS					
FROM TO		No.	From	То	Length 9	%Rec	%Py	%QV	%Ser		Au, g/t	Au,Check
	 the tuff is notably altered with pervasive spotty to wispy sericite and strong, tight sericite slips throughout. Strong zone of deformation but very dry, non-mineralized. 703.20 - 703.30 Strong chlorite, mud gouge fault @ 40° tca. 710.00 - 730.00 Massive, light green lapilli tuff with 3-4% angular lapilli clasts, up to 3 cm wide, in a very fine grained ash matrix. Clasts are black and white spotted, light grey and redbrown trachyte. Section contains numerous well spaced, tight sericitic slips, giving unit a blocky broken appearance in places. These slips are parallel to each other @ 40-45° tca. 719.30 - 721.40 Blocky section with numerous sericitic slips. Proximal to slips, tuff is bleached and sericitic giving unit an overall mottled appearance. 	3062 3063 3064 3065 3066	706.00 707.00 708.00 709.00 710.00	707.00 708.00 709.00 710.00 711.00	1.00 1.00 1.00 1.00	95			Ň		NIL NIL 0.01 0.01 NIL	
	 728.00 - 728.40 Rubbly, broken fault zone with strong sericitic mud gouge developed on slips @ 40° tca. 744.35 - 744.45 Broken, rubbly fault zone with moderate chloritic gouge @ 45-50° tca. Minor fragmented quartz + calcite veinlets. 754.80 - 756.40 Strongly foliated to schistose, sericitic shear zone @ 30° tca. Quite competent with sharp, tight sericitic slips and irregular anastomosing sericite within host. 1% quartz + chlorite veining and fracture filling. 756.40 - 757.00 Deformed and silicified section comprised of 5-7% irregular white to grey quartz pods and veining within a foliated fractured lapilli tuff which is quite sericitic. Section contains trace disseminated pyrite and is bounded 	3067 3068 3070 3071 3072 3073 3074 3075 3076 3077 3078 3077 3078 3079 3080 3081 3082 3083 3084 3085 3086 3087	742.00 743.00 744.00 744.50 745.00 746.00 747.00 748.00 749.00 749.00 749.70 750.50 751.00 752.00 753.00 754.00 754.80 755.50	743.00 744.00 744.50 745.00 745.00 747.00 749.00 749.00 749.70 750.50 751.00 752.00 753.00 754.00 754.80 755.50 756.30 757.10 758.00 759.00 760.00	1.00 1.00 0.50 0.50 1.00 1.00 1.00 0.70 0.80 0.50 1.00 1.00 1.00 0.80 0.70 0.80 0.70 0.80 0.70 0.80 0.90 1.00		Tr. Tr.	2 1-2 1 2-3 1-2 1-2 Tr. Tr. Tr. Tr. Tr. Tr. 1-2 1 1 Tr.	3-5 3-5 5-7 3-5 5-7 3-5 2-3 2-3 2-3 2-3 2-3 2-3 10-15 5-10 10-15 3-5 2-3	Tr.Cpy	0.01 NIL 0.03 0.02 0.01 0.01 0.01 NIL 0.02 0.01 0.01 0.01 0.01 0.01 0.01 0.01	

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INTERVAL FROM TO		DESCRIPTION					SAM	IPLE				AS	SAYS
FROM	то		No.	From	То	Length %	6Rec	%Py	%QV	%Ser		Au, g/t	Au.Check
		 760.00 - 771.00 Unit is partly interdigitated with narrow graywacke and siltstone horizons and lapilli tuffs gradually grade to polymictic pebble conglomerates. 762.55 - 763.00 Massive, dark green, aphanitic siltstone horizon. Upper contact sharp and irregular, lower contact is somewhat gradational. 765.70 Fault @ 65° tca. Chlorite + sericite ± quartz + calcite. Tight, strong fault slip with minor, narrow quartz veinlets. Wall rock is fractured and sericitic from 765.15 to 765.90 meters. 766.40 - 767.00 Graywacke horizon with banded (primary?) pyrite up to 0.50 cm wide, @ 40° tca. Very irregular contacts. 768.60 Fault @ 35° tca. Sericite + chlorite. Sharp tight atmosphere. 	3088 3089 3090 3091 3092 3093 3094 3095 3096	760.00 761.00 762.00 762.50 763.00 764.00 765.00 765.00	761.00 762.00 762.50 763.00 764.00 765.00 766.00 766.00	1.00 1.00 0.50 0.50 1.00 1.00 1.00		2	1-2 1-2 1 Tr. 1 1-2 2-3 Tr. Tr.	1-2 3-5 5-10 2-3		0.01 0.01 0.01 0.02 NIL NIL 0.02 0.02 0.01	ne chek
		slip plane. Wall rock is crenulated with wispy scricite, minor quartz veinlets to 0.50 cm wide and trace disseminated pyrite.	3098 3099	769.00 769.00 770.00	770.00 771.00	1.00 1.00 1.00		Ir.	1-2 1	2-3 2-3		0.02 NIL NIL	
771.00	791.30	 CONGLOMERATE Chloritic, massive, pristine, grey-green polymictic pebble conglomerate comprised of 25% well rounded to sub-angular clasts from 1-8 cm wide. Very poorly sorted, matrix to framework supported. Matrix is very quartz- poor with patchy strong magnetics and it may actually be more tuffaceous than sedimentary (graywacke), tuffaceous conglomerate. May still represent gradational zone from pure trachyte tuff to sediments. Lower contact of unit is gradational over 10-15 cm. 777.40 Fault @ 40° tca. Chlorite + sericite ± quartz + calcite. 2-3 mm wide, sharp tight slip with a 1-2 mm wide brecciated quartz + calcite veinlet adjacent to slip. 785.10 Fault @ 65° tca. Chlorite + sericite + quartz. Strong, tight slip with weak gouge developed. 785.05 - 785.20 Strongly foliated with 15-20% barren quartz flooding. 	3100 3101 3102 3103 3104 3105 3106 3107 3108 3109 3110 3111 3112 3113 3114 3115 3116 3117 3118 3119	771.00 772.00 773.00 774.00 775.00 776.00 777.00 778.00 780.00 781.00 782.00 783.00 784.00 785.00 785.00 786.00 786.00 787.00 788.00 789.00	772.00 773.00 774.00 775.00 776.00 777.00 778.00 780.00 780.00 781.00 783.00 783.00 784.00 785.00 786.00 786.00 786.00 786.00 786.00 786.00 786.00 789.00 790.00 791.00	$ \begin{array}{c} 1.00\\ 1.00$		Tr.	1 2-3 1	2-3 3-5Tr Cpy	Gal	0.01 0.01 NIL NIL NIL 0.01 NIL 0.01 NIL 0.01 NIL 0.01 0.02 NIL NIL 0.01 0.01 0.01 0.01 0.01	

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INTE	RVAL	DESCRIPTION					SAMPLE				AS	SAYS
FROM	то		No.	From	То	Length %	6Rec %P	/ %0	V %	Ser	Au, g/t	Au,Check
791.30	806.00	GRAYWACKE Weakly altered, massive to poorly bedded, light grey-green to yellow, very fine grained graywacke with minor dispersed angular mudstone chips and narrow siltstone horizons, 5-15 cm wide, which define bedding at 30° tca. Patchy zones of sericitic and silicic alteration with 0.5-1.0% finely disseminated pyrite and 1-2% white to dark grey, 2-8 cm wide irregular quartz veins. 799.00 - 800.00 Weakly foliated @ 25-30° tca.	3120 3121 3122 3123 3124 3125 3126 3127 3128 3129 3130 3131 3132 3133 3134	791.00 792.00 793.00 794.00 795.00 796.00 797.00 799.00 800.00 801.00 802.00 803.00 804.00 805.00	792.00 793.00 794.00 795.00 796.00 797.00 798.00 799.00 800.00 801.00 802.00 803.00 804.00 805.00	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	0.5- 0.5- 0.5- 0.5- 0.5- 0.5-	1 2 7 5 7. 1 1	8 1 -3 r. 1 1 1 5-1	-2 Sil -2 -2 10	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.07 0.01 0.02 0.01	
806.00	810.00	 LAPILLI TUFF Lapilli tuff, light grey-green to buff brown, mottled texture with patchy bleaching. Unit consists of 2-3% subrounded, black-white, salt & pepper textured clasts, up to 7 cm wide, in a fine grained ash matrix. Matrix varies from buff-brown to dark green and displays a patchy sericite alteration which gives unit its overall mottled texture. Section contains 2-3% barren white quartz veins, up to 0.50 cm wide, which frequently display lightly bleached alteration halos up to 5 cm from vein. 806.95 Fault slip @ 55° tca. Sharp, strong, chlorite slip with minor barren quartz veining on slip wall. 	3135 3136	806.00 807.00	807.00 808.00	1.00	T 0.	r.] 5	ř. 5-; 1 5-;	10 10	0.01	
810.00	916.00	 808.00 - 809.00 Black, chlorite + quartz, 0.55 mm wide, discontinuous fracture fillings @ 0-5° tca. CONGLOMERATE Chloritic, massive, pristine polymictic pebble-cobble conglomerate. Poorly sorted, matrix to framework supported. Weak bedding @ 50° tca. In part interdigitated with narrow graywacke, siltstone and minor lapilli tuff horizons. 813.60 Fault @ 55° tca. Sericite + quartz + calcite ± pyrite. Tight, sharp, sericitic slip with minor smeared pyrite on 	3137 3138 3139 3140 3141 3142 3143	808.00 809.00 811.00 812.00 813.00 814.00	809.00 810.00 811.00 812.00 813.00 814.00 815.00	1.00 1.00 1.00 1.00 1.00 1.00 1.00	O. T	5 2] r.]	-3 10-1 r. 2	-5 -3	0.19 0.02 0.19 0.01 0.02 0.02 0.02	

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INTE	RVAL	DESCRIPTION				SAM	IPLE			AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		 slip face. Adjacent to slip, is a 1.5 cm wide, laminated quartz ± calcite vein with trace, spotty pyrite ± galena. 816.50 - 822.20 Unit becomes notably foliated @ 40-50° tca with a weak to moderate sericitic foliation developed and some selective clast alteration evident. Gradual increase in deformation. 818.65 Fault slip @ 35° tca. Chlorite + sericite + quartz + calcite. 3-4 mm wide, quartz + calcite vein with trace spotty pyrite and chalcopyrite bounded by sharp, tight slip planes. 818.65 Fault slip @ 35° tca. Tight, sharp chlorite slip. 818.65 - 818.90 Moderately deformed and crenulated with 10-15% irregular sericite and 5% barren quartz flooding. 822.20 - 823.90 Shear zone @ 35° tca. Sericite + chlorite + quartz ± pyrite. Moderately strong deformation zone comprised of 15-20% irregular wispy sericitic foliation, sharp chlorite + sericite slips and 3-5% quartz and quartz + calcite veining and irregular quartz pods. Conglomerate clasts are still evident. More competent clasts are broken and fractured while more ductile clasts are sheared and sericitized and tend to have a patchy inhomogeneous pyrite replacement. Section has 1-2% patchy pyrite as selective clast replacement and finely disseminated pyrite on sericitic foliation. Trace chalcopyrite associated with 	3144 3145 3146 3147 3148 3149 3150 3151 3152 3153 3154 3155 3156	815.00 816.00 817.00 818.00 818.60 819.10 819.70 820.20 820.70 821.20 821.70 822.20 822.70	816.00 817.00 818.00 818.60 819.10 820.20 820.70 820.70 821.20 821.70 822.20 822.70 823.50	1.00 1.00 0.60 0.50 0.50 0.50 0.50 0.50 0.50 0	Tr. Tr. Tr. Tr. Tr. 1	Tr. 1-2 3-5 Tr. 1-2 1-2 1-2 1-2 1-2 2-3	5-7 10-15 5-10 5-10 5-10 5-10 5-10 5-10 15-20 15-20	0.01 0.02 0.01 0.02 0.01 0.01 0.04 0.02 0.01 0.03 0.05 0.02	
		 823.90 - 824.60 Weakly foliated but has a moderate, patchy sericite alteration and carries trace spotty pyrite + chalcopyrite associated with 1 mm wide quartz + chlorite stringers. Grades to a non-deformed, chloritic conglomerate with a few minor pyritic clasts (replacement) down to 827.8 m. 831.20 - 832.10 Graywacke/siltstone horizon with 2% quartz ± calcite stockworking veins (≤ 1 cm). Graywacke carries trace, disseminated pyrite in matrix. 	3157 3158 3159 3160 3161 3162 3163 3164 3165 3166 3167 3168 3169 3170	823.50 824.00 824.60 825.10 826.00 827.00 827.80 828.50 829.00 830.00 831.00 831.50 832.10 833.00	824.00 824.60 825.10 826.00 827.00 827.80 828.50 829.00 830.00 831.00 831.50 832.10 833.00 834.00	0.50 0.60 0.50 0.90 1.00 0.80 0.70 0.50 1.00 1.00 0.50 0.60 0.90 1.00	Tr. Tr. Tr. Tr.	1 Tr. 1 Tr. 1 Tr. 1-2 2-3	10-15 5-7 2-3 Tr. 2-3 Tr. Tr. Tr.	0.01 0.01 0.06 0.14 0.03 0.01 0.01 0.01 0.02 0.02 0.02 0.02 0.02	

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INTE	ERVAL	DESCRIPTION				SA	AMPLE			AS	SAYS
FROM	то		No.	From	То	Length %Rec	с %Ру	%QV	%Ser	Au, g/t	Au,Check
	916.00	 842.90 - 843.10 Fault @ 45° tca. Chlorite + sericite. Strongly foliated schistose shear zone comprised of 25% wispy sericite and tight chloritic slips. Barren. 852.00 - 852.10 Fault @ 50° tca. Sericite + chlorite + quartz + calcite. Moderately strong schistose zone with 5-10% white-pink quartz + calcite veining. 865.10 Fault slip @ 40° tca. Sericite + quartz + calcite. Tight, strong sericitic slip bounded by 5 cm wide, irregular, barren quartz + calcite vein. 870.40 Fault @ 40° tca. Sericite + quartz + calcite. Open vuggy quartz + calcite vein (2 cm) with minor euhedral pyrite in cavities and bounded by sharp tight sericitic slips. 871.20 Fault @ 40° tca. Sericite + chlorite + quartz + calcite. 3 cm wide, quartz + calcite vein with internal sericitic suturing. Bounded by tight sericitic slips. 874.20 - 875.30 Moderately sheared, foliated zone @ 40° tca. Consists of a series of tight sericite ± quartz + calcite slip planes. Interstitial to slips, conglomerate is weakly to moderately foliated and carries trace disseminated pyrite in matrix and a few clasts with weak pyrite replacement. 	3171 3172 3173 3174 3175 3176 3177 3178 3179 3180 3181 3182 3183 3184 3185	864.00 865.00 866.00 869.00 870.00 870.50 871.00 871.50 872.00 873.00 874.00 874.50 875.30	865.00 866.00 869.00 870.00 870.50 871.50 871.50 872.00 873.00 874.00 874.50 875.30 875.30	1.00 1.00 1.00 1.00 1.00 0.50 0.50 0.50	Tr. Tr. Tr. Tr.	1 1 Tr. 1 1-2 Tr. 1	5 3-5 1-2 2-3 2-3 2-3 3-5 5-10	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01	

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INTE	RVAL	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		DESCRIPT	ION					SAM	PLE			ASS	SAYS
FROM	то					No.	From	То	Length	%Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
	916.00	E. O. H. Additional As	58 <u>75</u>												
		Sample No. 3126 3127 3128 3129 3130 3131 3132 3133 3134 3135 3136 3137 3138 3139 3156 Abbreviations Chl. Fuch. Tr. Cpy Gal.	Pb (ppm) 3 8 3 4 7 2 4 1 2 4 1 2 4 2 3 4 5 22 Used in Sample Chlorite Fuchsite Trace Chalcopyrite Galena	Zn (ppm) 52 49 61 66 64 45 60 67 65 50 49 58 63 68 57 2 Descriptions	<u>Te (ppm)</u> 1										

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PROPERTY TOWNSHIP CLAIM No.	Amalgamated Kirkland Teck L 491662, L 491663	DATE LOGGED LOGGED BY DRILLED BY	June 17 · 28, 1992; A Mark Masson Heath & Shenwood	August 15, 1992	EASTING NORTHING	8188.8 10374.9	Depth	Method	Azimuth	Dip
STARTED COMPLETED	June 16/92 ; Aug.13/92 June 26/92 ; Aug.15/92	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake Ware B.M.C.I. Sperry Sun	house	LENGTH UNITS CORE SIZE	332.3 Northland Technical 556.8 metres NQ	Note:	See table at for downhol	end of sumn surveys	ary log
PURPOSE COMMENTS	To test "102"/"103" struc "104" structure @ 307.60 "103" structure @ 399.00 "102" structure @ 505.50 Hole extended from 507.	tures @ 425 m level.) - 312.00, 4.40 m.) - 450.10, 51.10 m.) - 510.00, 4.50 m. .50 - 556.80	SIGNED BY	(W. Benham)		-				

	SUM	MARY LOG		AS	SSAY SUMM	IARY
INTERVAL From To	DESCRIPTION	INTERVAL From To	DESCRIPTION	INTERVAL From To	LENGTH in metres	AVERAGE Au g/t
0.0 1.40 1.40 39.00 39.00 67.40 67.40 72.20 72.20 80.30 80.30 129.25 129.25 227.60	OVERBURDEN IAPILLI TUFF IAPILLI TUFF Monolithic ASH TUFF IAPILLI TUFF IAPILLI TUFF/ASH TUFF/SILTSTONE 126.10 Fault @ 50° tca. GRAYWACKE 136.05 - 136.30 Fault @ 65° tca. 156.50 - 157.10 Fault @ 15-20° tca.	366.00 372.70 372.70 376.30 376.30 380.30 380.30 385.90 385.90 390.15 390.15 399.00 399.00 450.10	CONGLOMERATE Sericitic, foliated @ 40° tca. GRAYWACKE/CONGLOMERATE/SILTSTONE MUDSTONE/GRAYWACKE CONGLOMERATE ALTERED TUFF/RED ROCK/SYENITE CONGLOMERATE Sericitic, foliated @ 40° tca. BLEACHED LAPILLI TUFF Sericitic, foliated @ 40° tca. 432.10 - 432.70 Fault @ 55° tca	311.00 311.60 369.00 370.00 399.00 399.50 432.00 432.70 468.00 474.00	0.60 1.00 0.50 0.70 6.00	16.67 0.20 0.38 1.15 0.23 * Note 1
227.60 247.60 247.60 287.20 287.20 366.00	CONGLOMERATE Foliated @ 30° tca. LAPILLI TUFF Foliated @ 30° tca. sericitic. 282.10 - 282.15 Fault @ 65° tca. GRAYWACKE 300.65 - 300.75 Quartz + albite + pyrite vein.	450.10 468.00	442.00 - 449.95Fractured zone, chlorite + quartz + pyrite.449.95 - 450.10Fault @ 25° tca.GRAYWACKE461.15 - 461.30461.30 - 468.00Fractured zone @ 15° tca.Fractured zone chlorite + quartz + albite ± pyrite.	505.50 510.00	4.50	0.38
	307.60 - 308.10 Shear zone @ 55° tca. 310.40 - 312.00 Shear zone @ 55° tca. 311.00 - 311.10 Blue-grey pyrite + quartz vein. 364.60 - 364.70 Fault @ 40° tca.	468.00 478.70	466.35 - 466.45 Blue-grey, sericite + pyrite + quartz vein @ 70° tca. CONGLOMERATE Sericitic, foliated @ 40° tca.			

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PROPERTY TOWNSHIP	Amalgamated Kirkland Teck	DATE LOGGED LOGGED BY	June 17 - 28, 1992; August 15, 1992 Mark Masson	EASTING NORTHING	8188.8 10374.9	Depth	Method	Azimuth	Dip
CLAIM No. STARTED COMPLETED	L 491662, L 491663 June 16/92 ; Aug.13/92 June 26/92 ; Aug.15/92	DRILLED BY CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Heath & Sherwood Kirkland Lake Warehouse B.M.C.I. Sperry Sun	ELEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	332.3 Northland Technical 556.8 metres NQ	Note:	See table at for downhole	end of sumn surveys	ary log
PURPOSE COMMENTS	To test "102"/'103" struct "104" structure @ 307.60 "103" structure @ 399.00 "102" structure @ 505.50 Hole extended from 507	tures @ 425 m level.) - 312.00, 4.40 m.) - 450.10, 51.10 m.) - 510.00, 4.50 m. .50 - 556.80	SIGNED BY (W. Benham))					

	SUMI	MARY LOG			AS	SSAY SUMM	IARY
INTERVAL From To	DESCRIPTION	INTERVAL From To		DESCRIPTION	INTERVAL From To	LENGTH in metres	AVERAGE Au g/t
478.70 480.70 480.70 483.10 483.10 499.30 499.30 505.00 505.00 510.00 510.00 515.60 r 515.60 556.80	MUDSTONE Sericitic, quartz + chlorite veins. GRAYWACKE 480.70 - 481.00 Silicified zone, quartz + sericite ± pyrite. CONGLOMERATE GRAYWACKE/MUDSTONE Sericitic, foliated @ 30° tca, 3-4% qtz + albite ± py. 504.30 - 505.00 Fault @ 35° tca. CONGLOMERATE Sericitic, foliated @ 45° tca, trace pyrite. GRAYWACKE Sericitic. S15.00 - 515.60 Ductile shear @ 35° tca. 1-2% quartz veins, trace pyrite. ASH/LAPILLI TUFF S15.60 - 517.00 Weakly to moderately sericitic and fractured. Weakly foliated @ 45° tca. S17.00 - 556.80 Strongly magnetic. 525.75 - 526.15 Quartz + chlorite vein, trace pyrite and chalcopyrite.	556.80	539.50 - 539.80 546.00 - 549.00 547.50 - 547.95 E O H	Quartz + carbonate granular breccia vein. Trace pyrite, chalco- pyrite and galena. 2-3%, 0.5-5 cm wide granular carbonate veins @ 55° tca with trace pyrite chalcopyrite and galena. Carbonate ± quartz + barite(?) vein @ 55° tca with trace chalcopyrite and 2-3% galena.	NOTE 1: No obvious reas anomalous gold as 474.0 m were foun expected for the in section has narrow and 1-5 mm chlorit. Since the assays re quartered in order sampling of these t	ons for the lossys for the inter d. Instead anom terval from 464.0 quartz veins wi e + quartz ± pyr sults are very low to check for a po wo intervals.	bw geochemically rval from 468.0 to alous results were 0 to 469.0 m. This th traces of pyrite ite fracture fillings. v, the core was not possible error in the

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PROPERTY TOWNSHIP	Amalgamated Kirkland Teck	DATE LOGGED LOGGED BY	June 17 - 28, 1992; August 15, 1992 Mark Masson	EASTING NORTHING	8188.8 10374.9	Depth	Method	Azimuth	Dip
CLAIM No. STARTED COMPLETED	L 491662, L 491663 June 16/92 ; Aug.13/92 June 26/92 ; Aug.15/92	DRILLED BY CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Heath & Sherwood Kirkland Lake Warehouse B.M.C.I. Sperry Sun	ELEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	332.3 Northland Technical 556.8 metres NQ	Note:	See table b surveys	clow for dov	/nhole
PURPOSE	To test "102"/"103" struct	tures @ 425 m level.							
COMMENTS	 "104" structure @ 307.60 - 312.00, 4.40 m. "103" structure @ 399.00 - 450.10, 51.10 m. "102" structure @ 505.50 - 510.00, 4.50 m. Hole extended from 507.50 - 556.80 		SIGNED BY (W. Benha	m)					

							AS	SSAY SUMM	ARY					
INTERVAL From To			DESCRIF	PTION		INTERVAL From To		DESCRI	PTION		INTEF From	RVAL To	LENGTH in metres	AVERAGE Au g/t
		Depth	Method	Azimuth	Dip		Depth	Method	Azimuth	Dip				i
		Collar	Compass	161	71		275.0	Acid	L	65				
		30.0 Acid 71		71		300.0	Sperry Sun	145	63					
		61.0	Acid		71		305.0	Acid		63				
		91.0	Acid		70		335.0	Acid		62				
		100.0	Sperry Sun	152	69		365.0	Acid		61				
		122.0	Acid		70		400.0	Sperry Sun	142	58.5				
		152.0	Acid		69		426.0	Acid		58				
		182.0	Acid		68		500.0	Sperry Sun	141	55.5				
		200.0	Sperry Sun	150	66		532.0	Sperry Sun	147	55				
,		213.0	Acid		66									
		244.0	Acid		65									
													···	

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INTE	RVAL	DESCRIPTION				SAN	IPLE		······································	AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
0.00	1.40	OVERBURDEN Casing run to 3.7 metres.									
1.40	39.00	 LAPILLI TUFF Massive, chloritic to hematitic, dark grey-green to purple heterolithic lapilli tuff. Comprised of 1-5% angular to sub-rounded lapilli clasts ranging from 0.2 - 1 cm in a very fine-grained ash matrix. Clasts vary from red-brown to buff to dark green. Unit is in part intercalated with ash tuff horizons, ≤ 1.5 m wide, with gradational contacts. Moderate to strongly magnetic. Unit contains 1-2% quartz ± calcite stingers, ≤ 1 cm wide, @ 10-20° tca. 12.85 - 12.90 Weak fault slip @ 60° tca. Tight chloritic slip with 5 cm of weak to moderate sericitization of wall rock. 24.30 - 24.40 Fault @ 60° tca. Chlorite + sericite + hematite ± calcite. Moderately well foliated tuff with sharp, tight chloritic slips and 2-3% calcite stringers. Moderately sericitic. 29.50 Ash tuff displays moderately well developed bedding @ 75° tca. 									
39.00	67.40	 LAPILLI TUFF Massive, chloritic to hematitic, coarse, dark green to black monolithic lapilli tuff comprised of 5-10% angular to subrounded trachyte clasts ranging from 0.5-7 cm. Predominant clast type is a dark red to pink, porphyritic trachyte (often displays trachytoid texture) as in the coarse block tuffs ie: monolithic. Secondary clasts are dark grey-green to buff coloured and generally very fine grained. Very strongly magnetic. Lower contact gradational over 0.5 metre. 43.40 - 43.90 Fault slip @ 10° tca. Chlorite + ankerite + calcite. Open, vuggy cross-fault slip up to 1 cm wide. Moderate ankeritic stain and minor calcite infilling. 48.00 - 67.40 Unit becomes predominantly monolithic coarse lapilli/block tuff. 			•						
67.40	72.20	ASH TUFF Massive, chloritic non-bedded, dark green. Fine to very fine grained, non- descript. Contains < 1% scattered lapilli clasts. Strongly magnetic. Lower contact gradational over 25 cm.									

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INTE	RVAL	DESCRIPTION				SAM	IPLE			AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
72.20	80.30	 LAPILLI TUFF Massive, dark grey-green. Comprised of 5-15% angular to subrounded heterolithic clasts ranging from 0.2 - 3 cm (avg. 1 cm) in a fine grained ash matrix. Moderately magnetic. 72.75 - 72.85 Fault @ 75° tca. Chlorite + sericite + calcite + ankerite. Rusty, ankeritic stained shear with tight chloritic slips and a 1 cm wide broken calcite vein. 76.30 Quartz breccia vein. 1 cm wide, white-buff, irregular quartz vein with angular wallrock fragments. Minor chalcopyrite evident on vein wall. 80.30 Fault slip @ 15° tca. Chlorite + sericite ± hematite. Tight, sharp chlorite + sericite slips, 1-2 mm wide. Proximal to slip, unit is weakly bleached and sericitic with patchy hematitic zones evident. 									
80.30	129.25	 LAPILLI TUFF/ASH TUFF/SILTSTONE Massive, chloritic to sericitic, light to medium, grey-green, heterolithic lapilli tuff with 5-7%, angular to subrounded clasts from 0.2 - 7 cm. Predominant clasts are light buff to pink, fine grained to spotted trachytes and very fine grained dark green volcanics. Lapilli tuff grades to ash tuff of equivalent composition. Unit is also in part intercalated with narrow, ≤2 metres wide, aphanitic siltstone horizons which display sharp contacts @ 30-40° tca. Weak, patchy magnetics. Lower contact of unit is sharp and moderately to strongly deformed, foliated and sericitic. Contact is marked by narrow mudstone beds @ 55° tca. 87.30 - 89.50 Broken rubbly section due to irregular, low angle (5-15° tca) chlorite + sericite slips. Section displays moderate pervasive sericitization and in places a pseudo "crack and seal" texture due to narrow chloritic suturing. Barren, non-mineralized. 104.90 Fault slip @ 50° tca. Chlorite + sericite + calcite. 2 mm wide, tight chloritic slip smeared with calcite. Wallrock displays moderate sericitization up to 5 cm from slip. 108.60 - 108.75 Fault @ 50°. Chlorite + sericite + quartz. 10 cm wide, buff-white to pink quartz vein with tight internal slips and slip walls. No wallrock alteration. 				1					

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INTE	RVAL	DESCRIPTION				SAL	ADI E			A G	CANC
FROM	то		No.	From	To	Length %Rec	gh Pu	«ΩV	%Ser	As As	SAIS
		 123.90 - 123.95 Fault @ 65° tca. Chlorite + sericite + quartz ± calcite. Sheared foliated lapilli tuff with tight chlorite slips and 5-7% white, irregular quartz pods and stringers. Trace chalcopyrite. 126.10 Fault slip @ 50°. Sericite + chlorite. Moderately strong, tight, 2 mm wide, sericite + chlorite slip with weak gouge developed. 								Au, g/i	Au, Cneck
129.25	227.60	 GRAYWACKE Massive to poorly bedded, chloritic to sericitic, light grey-green graywacke to quartz arenite. Quite fine grained with 60-70% quartz and 10-15% fine grained lithics including jasper. Unit typically contains 1-3% irregular, random fracturing infilled with white to grey quartz and/or quartz + chlorite stringers, 0.5 mm to 1 cm wide. Sericite alteration is patchy throughout. Undeformed, non-magnetic. Contains minor mudstone horizon and scattered angular mudstone chips. Weakly bedded @ 40-50° tca. 136.05 - 136.30 Fault @ 65° tca. Chlorite + sericite + quartz. 20 cm wide white-grey, quartz ± albite vein bounded by strong, chloritic mud gouge slips, up to 0.5 cm wide. Trace spotty chalcopyrite. 136.70 Fault @ 60° tca. Chlorite + sericite + quartz. 1 cm wide, strong chloritic mud gouge with minor white quartz ± albite veining. 137.10 Fault @ 45° tca. Sericite + chlorite + quartz + calcite. 1-2 cm wide, crushed foliated greywacke bounded by tight sericite ilisp, 1-3 mm wide with weak to moderate gouge developed. 156.50 - 157.10 Fault @ 15-20° tca. Chlorite + sericite. Broken, rubbly section. Strong, irregular low angle fault, up to 3 mm wide, with moderate-strong mud gouge. 164.00 - 173.00 Pebbly graywacke (conglomerate) horizon with gradational contacts. Contains 2-10% angular to well rounded, polymictic clasts, up to 5 cm. Some mafic clasts are notably fuchsitic. 180.40 - 180.60 Foliated to weakly sheared zone. Sericite + chlorite + pyrite. Moderately well foliated graywacke @ 60° tca. Comprised of fine hairline chloritic seams with notably bleached sericitic halos, up to 1 cm wide, which carry trace - 1% fine grained pyrite proximal to seams. 	3186 3187 3188 3189 3190 3191	178.30 179.30 180.30 180.80 181.40 182.00	179.30 180.30 181.40 182.00 183.00	1.00 1.00 0.50 0.60 1.00	Tr1 Tr.	Tr. 1 Tr.	1-2 1-2 2-3 2-3 1-2 1-2	0.01 0.01 0.02 NIL 0.01 0.02	

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INTE	ERVAL	DESCRIPTION				SAN	APLE			AS	SAYS
FROM	ТО		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au, Check
		 180.50 A 2 cm wide quartz ± calcite vein with schistose wall contacts and 0.5-1% pyrite at vein contact. 187.60 - 188.00 Fault @ 15° tca. Chlorite + sericite + quartz + calcite. Open, vuggy, rubbly fault zone with a 1 cm wide, white-pink, quartz + calcite vein bounded by tight, muddy chlorite + sericite slips. Vein carries trace, blebby pyrite and chalcopyrite. 188.20 - 188.50 Fault @ 35° tca. Sericite + chlorite ± quartz + calcite. Broken, rubbly shear. Comprised of tight sericite + chlorite slips and minor quartz + calcite veinlets. 188.50 - 200.00 Graywackes are weakly to moderately foliated @ 10-30° tca and contain sporadic barren quartz veins and pods (cross fault alteration). Unit is pervasively sericitic with 2-5% spotty ubiquitous sericite. Section also contains numerous tight, 1-3 mm wide, chloritic slips @ 10-20° tca. Non-mineralized. 220.30 - 220.60 Sericitic graywacke with 3% irregular white quartz veining from 1-3 cm wide. Veins are internally fractured and 	3192 3193 3194 3195 3196 3197 3198 3199	214.00 215.00 216.00 217.00 218.00 219.00 219.60 220.20	215.00 216.00 217.00 218.00 219.00 219.60 220.20 220.70	1.00 1.00 1.00 1.00 1.00 1.00 0.60 0.60	Tr.	1-2 1 1 Tr. 1 Tr. 2	2-3 3-4 3-4 3-4 3-4 3-5 3-5 3-5 3-5	0.02 0.03 0.02 0.01 0.01 0.01 0.01	
227.60	247.60	 pseudo-brecciated by hairline chloritic fractures. 220.40 A 2-3 mm wide quartz + albite vein @ 40° tca which carries 2-3% fine grained euhedral pyrite. 220.80 - 221.30 Fault @ 55° tca. Sericite + chlorite + quartz. Strongly foliated to schistose graywacke with 3% hairline chloritic fracturing and sericitic slips. Zone contains 3% irregular patchy quartz veining and 5-10% pervasive sericitization. CONGLOMERATE Massive to moderately well foliated chloritic to sericitic conglomerate with prominent clast elongation @ 30° tca. Poorly sorted, non-bedded polymictic pebble conglomerate. Upper contact is a sharp, tight chloritic slip @ 45° tca. Matrix to framework supported with clasts ranging from 2 mm to 10 cm and sub-angular to well rounded. 	3200 3201 3202 3203 3204 3205 3206 3207 3208	220.70 221.30 222.00 222.70 223.50 224.00 225.00 226.00 227.00	221.30 222.00 222.70 223.50 224.00 225.00 226.00 227.00 227.60	0.60 0.70 0.70 0.80 0.50 1.00 1.00 1.00 0.60	Tr.	3 1 2-3 Tr.	5-7 2-3 5-7 2-3	0.01 0.02 0.01 0.01 0.01 NIL NIL 0.02	

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INTE	RVAL	DESCRIPTION					SAMPL	Ę			AS	SAYS
FROM	TO		No.	From	То	Length %I	Rec %	6Py 9	QV	%Ser	Au, g/t	Au,Check
		247.00 - 248.00 Series of tight, 1-2 mm wide, chloritic fault slips @ 10° tca which somewhat obscures contact zone.										
247.60	287.20	LAPILLI TUFF Massive to moderately well foliated and clast elongation @ 30° tca. Comprised of 5-7% angular lapilli clasts, from 3 mm to 5 cm, in a very fine grained ash matrix. Predominant clast type (75%) is a very fine grained to spotted light grey-brown to buff trachyte. Secondary clasts are dark green and black-white spotted trachyte. Typically non-magnetic, chloritic and weakly to moderately sericitic.										
		 256.00 Fault slip @ 25° tca. Chlorite + sericite + quartz. Tight, strong chlorite slip, 2 mm wide, with 2-3% irregular narrow quartz stringers proximal to slip plane. 250.00 - 267.00 Unit displays variable colours from light green to buff where sericitic and red-brown where it is locally hematitic. Section contains numerous low angle chloritic slips and from the serie of 10 25° top 										
		274.60 - 275.20 Diabase dyke @ 25° tca. Contacts are very sharp with 1-3 mm wide chill margins. Massive, dark green, very fine				1						
		grained to aphantic. Patchy magnetics. 282.10 - 282.15 Fault @ 65° tca. Sericite + quartz. 3 cm wide, pink-brown quartz vein bounded by 2-3 mm wide, strong sericitic slips with moderate source developed	3209 3210	281.00 282.00	282.00 282.50	0.50			1 1-2	2-3 3-5	0.03	
		282.15 - 287.00 Lapilli tuff becomes notably bleached to a light grey colour and somewhat harder possibly silicified. Also notably sericitic (2-3%) with fine irregular hairline sericitic fractures. Weak foliation @ 30° tca. Section also carries trace to 3%, ≤ 2 cm wide, white quartz veins subparallel to foliation. Occasionally subparallel veins carry trace fine grained pyrite on sericitic cleavages and vein walls.	3211 3212 3213 3214	282.50 283.00 284.00 285.00	283.00 284.00 285.00 286.00	0.50 1.00 1.00 1.00		Tr.	Tr. 1-2 1-3 Tr.	2-5 2-5 2-3	0.01 0.02 0.02 0.01	
		286.40 - 286.50 Fault @ 60°. Chlorite + sericite + quartz + albite. 6 cm wide, white quartz + albite vein with sharp tight slip walls and internal chloritic cleavage. Vein carries trace fine grained subhedral pyrite, possibly pseudomorphing (?) blue.strew salena(?)	3215	286.00	286.50	0.50		Tr.	2	2-5	0.01	
		286.85 - 287.20 Lower contact zone is moderately well foliated with tight chloritic slips and 3-5% irregular quartz ± albite veins and pods with trace spotty pyrite.	3216	286.50	287.20	0.70		Tr.	2-3	3-5	0.01	

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INTERVAL	DESCRIPTION					SAN	MPLE				AS	SAYS
FROM TO		No.	From	То	Length	%Rec	%Pv	%OV	%Ser		Au oft	Au Check
287.20 366.00	 GRAYWACKE Chlorite. Massive to poorly bedded, fine to very fine grained, light grey-green, predominantly quartz rich (50-60%) graywacke with scattered angular mudstone chips. Weakly to moderately pervasively sericitic with finely disseminated spotty sericite in groundmass and irregular sericitic fractures 1-2 mm wide. Unit contains trace pyrite as finely scattered disseminations and as fine grained primary bands up to 2-3 mm wide. 290.50 - 290.80 Series of fine grained pyritic bands, 1-3 mm wide. Primary bedding @ 50° tca. 300.65 - 300.75 Quartz ± albite + sericite + pyrite vein. Irregular cream-grey quartz + albite vein with 1-2% fine grained pyrite occurring on 1 mm wide internal sutures and along vein walls. 304.60 - 306.30 Irregular tight sericitic slip subparallel tca. At 306.00, this slip truncates an irregular banded pyritic horizon with 3% pyrite across 5 cm (possibly primary pyrite). 307.60 - 308.10 Shear zone @ 55° tca. Sericite + quartz ± pyrite. Well foliated to schistose sericitic graywacke with tight strong sericite slips and shears. Section contains 2-3% patchy, irregular, white-brown quartz ± albite veins, stringers and pods up to 1 cm wide. These veins carry trace to 1% fine grained patchy pyrite on vein walls. 308.10 - 310.40 Graywacke is moderately well foliated and sericitic with occasional fuchsitic altered fragments evident. 310.40 - 312.00 Shear (fault) zone @ 55° tca. Sericite + chlorite + quartz ± pyrite	3217 3218 3219 3220 3221 3222 3223 3224 3225 3226 3227 3228 3229 3230 3231 3232 3233 3234 3235 3236 3237 3238 3239 3240 3241 3241 3241 3241 3242 3243 3244 3245	287.20 288.00 299.00 291.00 292.00 293.00 294.00 295.00 295.00 295.00 296.00 297.00 298.00 299.00 300.00 301.50 301.00 301.50 302.00 305.80 305.80 305.80 305.80 305.80 305.50 307.50 308.20 309.00 310.00 310.40	288.00 289.00 290.00 291.00 292.00 293.00 294.00 295.00 295.00 296.00 297.00 298.00 299.00 300.00 301.50 301.00 301.50 302.00 303.00 305.80 305.80 305.80 306.50 307.00 305.80 306.50 307.00 305.80 307.00 308.20 309.00 310.00 310.00 311.00	0.80 1.00 1.00 1.00 1.00 1.00 1.00 1.00	95	2017y 1 1 1 1 1 1 1 7 r. 1 1 7 r.	2-3 2-3 2-3 1-2 2-3 1-2 2-3	2-3 2-3 2-3 2-3 2-3 2-3 2-3 2-3 3-5 3-5 3-5 3-5 3-5 3-5 3-5 3-5 3-5 3	Gal.	0.02 0.02 0.02 0.01 0.01 0.01 0.01 0.01	Au,Check
	 304.60 - 306.30 Irregular tight sericitic slip subparallel tca. At 306.00, this slip truncates an irregular banded pyritic horizon with 3% pyrite across 5 cm (possibly primary pyrite). 307.60 - 308.10 Shear zone @ 55° tca. Sericite + quartz ± pyrite. Well foliated to schistose sericitic graywacke with tight strong sericite slips and shears. Section contains 2-3% patchy, irregular, white-brown quartz ± albite veins, stringers and pods up to 1 cm wide. These veins carry trace to 1% fine grained patchy pyrite on vein walls. 308.10 - 310.40 Graywacke is moderately well foliated and sericitic with occasional fuchsitic altered fragments evident. 310.40 - 312.00 Shear (fault) zone @ 55° tca. Sericite + chlorite + quartz ± pyrite. Moderately to strong deformed sericitic 	3233 3234 3235 3236 3237 3238 3239 3240 3241 3241 3242 3243 3244 3245	301.50 302.00 303.00 304.00 305.00 305.80 306.50 307.00 307.50 308.20 309.00 310.00 310.40	302.00 303.00 304.00 305.00 305.80 306.50 307.00 307.50 308.20 309.00 310.00 310.00 311.00	0.50 1.00 1.00 0.80 0.70 0.50 0.50 0.70 0.70 0.80 1.00 0.40 0.60	95	1 Tr. Tr.	2-3 1-2 2-3 1-2 1 Tr. 1-2	3-5 3-5 5-7 3-5 3-5 3-5 5-10		0.01 0.01 NIL 0.01 0.01 0.01 NIL 0.02 0.01 0.02 0.01 0.04	

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INTE	RVAL	DESCRIPTION				SAN	APLE		<u> </u>	AS	SAYS
FROM	TO		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		 graywacke (foliated to schistose) with numerous tight strong mud slips. Section contains 3-5% white to blue-grey quartz veins up to 5 cm wide which carry trace to 1% fine grained pyrite on vein sutures. 311.00 - 311.10 White to blue-grey quartz vein with strong, hairline sericitic fractures or slips which carry 1% fine grained pyrite. 2-3% dark red patchy hematitic staining (?). 311.45 Strong mud gouge seam @ 60° tca. 0.5 cm wide. Proximal to gouge is an irregular white-pink quartz ± albite vein with the series of shows a strong with strong strong with strong with strong strong backward shows a strong strong	3246 3247	311.00 311.60	311.60 312.30	0.60 0.70	Tr1 Tr.	3-5 2-3	10-15 5-10	15.96 0.07	17.38
		312.00 - 336.00 Unit is massive, undeformed, weakly sericitic, pristine graywacke.	3248 3249 3250	312.30 313.00 314.00	313.00 314.00 315.00	0.70 1.00 1.00		Tr. Tr. Tr.	3-5 2-3 2-3	0.01 0.02 0.01	
		 336.00 - 336.10 Fault @ 60°. Sericite + quartz + albite ± pyrite. 5 cm wide, white-buff quartz ± albite vein bounded by strong, tight muddy sericitic slips. Also has irregular internal sericitic parting which frequently carries trace to 1% subhedral pyrite. 	3251 3252 3253 3254 3255 3256	333.00 334.00 335.00 336.00 336.50 337.00	334.00 335.00 336.00 336.50 337.00 337.50	1.00 1.00 1.00 0.50 0.50 0.50	Tr.	1-2 1-2	2-3 2-3 2-3 2-3 2-3	0.02 0.03 0.03 0.02 0.02 0.02	
		337.75 - 337.80 Quartz breccia vein @ 55° tca. Buff-white to blue-grey breccia vein with white quartz ± albite fragments (≤ 0.5 cm) in a blue-grey quartz groundmass. Vein carries 1-2% fine grained subhedral pyrite disseminations in the grey groundmass.	3257	337.50	338.00	0.50	Tr.	1-2	2-3	NIL	
		 338.20 - 338.50 Fault zone @ 45-50 tca. Sericite + chlorite + quartz + pyrite. Strongly deformed, foliated and sericitized graywacke with at least three stages of quartz flooding: i) milk-white irregular quartz + albite veins and pods parallel to foliation. ii) white quartz + albite veins @ 90° to foliation which often carry trace spotty chalcopyrite iii) dark blue-grey to white quartz parallel to foliation which carries 1 - 2% very fine grained pyrite on fine 	3258 3259 3260 3261 3262 3263 3264 3265 3266	338.00 338.50 339.00 340.00 341.00 342.00 343.00 344.00 359.00	338.50 339.00 340.00 341.00 342.00 343.00 344.00 345.00	0.50 0.50 1.00 1.00 1.00 1.00 1.00 1.00	Tr1 Tr.	3-5 1-2	5-10 2-3 2-3	0.05 0.03 0.03 0.02 0.02 0.02 0.05 0.03	
		hairline fractures.	3267 3268 3269	359.90 360.90 361.90	360.90 361.90 362.50	1.00 1.00 0.60	Tr. Tr.	1 1	2-3 2-3	0.03 0.04 0.02 0.02	

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INTE	RVAL	DESCRIPTION				SAN	IPLE			4884	VS
FROM	то		No.	From	То	Length %Rec	%Pv	%0V	%Ser	Auent	An Check
		 363.20 - 363.40 Fault @ 20° tca. Sericite + quartz ± pyrite. 3 cm wide cream-buff quartz vein bounded by sharp, tight sericitic slips. Internally vein has sericitic fracturing and minor grey-green quartz + chlorite veining which carries trace subhedral pyrite. 364.60 - 364.70 Fault @ 40° tca. Sericite + chlorite. Strong, tight, dry sericitic shear with moderate mud gouge developed. Minor patchy quartz ± albite pods. 	3270 3271 3272 3273 3273 3274	362.50 363.00 363.50 364.00 365.00	363.00 363.50 364.00 365.00 366.00	0.50 0.50 0.50 1.00 1.00	Tr.	2-3 Tr.	2-3 2-3	0.03 0.01 0.01 0.01 0.02	11, CIICCK
366.00	372.70	CONGLOMERATE Moderately deformed, foliated, chloritic, sericitic, polymictic pebble conglomerate. Prominent clast elongation and matrix foliation @ 40° tca. Matrix is light green and notably pervasively weakly to moderately sericitic. More mafic type clasts display strong elongation and sericitization while harder lithologies remain unaltered and undeformed. Lower contact is marked by a 3 mm wide, strong mud shear.	3275 3276 3277 3278 3279 3280 3281	366.00 367.00 368.00 369.00 370.00 371.00 372.00	367.00 368.00 369.00 370.00 371.00 372.00 372.70	1.00 1.00 1.00 1.00 1.00 1.00 0.70				0.04 0.08 0.01 0.20 0.02 0.03 0.06	
372.70	373.40	SILTSTONE Dark grey-brown, massive aphanitic siltstone. Very soft and sericitic. Non- descript.	3282	372.70	373.50	0.80		Tr.		0.06	
373.40	375.20	GRAYWACKE Massive, fine grained, medium grey-green. Weak pervasive, spotty sericite and trace disseminated pyrite. Sharp upper contact @ 45° tca. Lower contact is marked by a 0.5 cm wide, sericite + quartz/calcite slip with weak mud gouge.	3283 3284	373.50 374.40	374.40 375.20	0.90 0.80	Tr. Tr.	Tr. Tr.	2-3 2-3	0.03 0.01	
375.20 376.30	376.30 380.30	CONGLOMERATE Massive to weakly foliated, moderately sericitic polymictic pebble conglomerate. Mafic and spotted trachyte clasts (0.5-7 cm) are notably sericitized. 376.30 Fault @ 75° tca. Sericite. 1 cm wide, strong mud gouge. MUDSTONE/GRAYWACKE Light to dark grey graywacke/quartz arenite horizons intercalated with light yellow-green sericitic laminated mudstone beds, from 0.5-5 cm wide.	3285 3286	375.20 375.80	375.80 376.30	0.60 0.50	Tr.	Tr. Tr.	3-5 3-5	0.08 0.03	

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INTE	RVAL	DESCRIPTION				SAN	IPLE		·		SAVE
FROM	то		No.	From	То	Length %Rec	%Pv	%0V	%Ser	Au ah	An Charle
380.30	385.90	CONGLOMERATE Massive, pristine polymictic pebble-cobble conglomerate. Poorly sorted, framework to matrix supported, chloritic groundmass. Clasts of jasper, volcanics, granitoids etc., ranging from 1-2 mm to 10+ cm, are generally well rounded. Lower contact is marked by a sharp, tight (2 mm) chlorite slip @ 55° tca.								Au, gr	AUJUIECK
385.90	390.15	ALTERED TUFF/SYENITE/RED ROCK Albitized, massive, fine grained dark red-brown hematitic tuff or syenite "red rock". Very hard. Comprised of 3% fine dark green, subhedral crystals and crystal aggregates from 0.5-2 mm in size. Individual crystals are lath- shaped and may be chloritized amphibole/pyroxene. Groundmass is dark red-brown and aphanitic. Unit also contains 1-2% irregularly shaped masses of milk-white albite(?) up to 0.5 cm wide. Non-mineralized, non- magnetic. Surrounding sediments are unaltered and undeformed. Lower contact marked by a tight, sharp chloritic slip @ 55° tca.									
390.15	399.00	CONGLOMERATE Weakly foliated, weakly to moderately sericitic polymictic pebble conglomerate. Prominent clast elongation @ 40° tca. Unit is predominantly dark green and chloritic. Lower contact is marked by a 0.5 cm wide sericitic shear @ 60° tca. 397.20 - 399.00 Light grey-green, moderately sericitic (bleached) and year	3287	398.00	300.00	100		10	6.7		
		weakly foliated, pebbly graywacke.	5201	576.00	399.00	1.00		1-2	5-7	0.01	
399.00	450.10	 BLEACHED LAPILLI TUFF Massive to weakly foliated with clast elongation @ 40° tca. Comprised of 5-10% angular lapilli clasts from 1-2 mm to 10 cm (avg. 2-3 cm) floating in a very fine grained to aphanitic bleached sericitic matrix which is quite soft. Matrix varies in colour from light green (sericitic) to grey-brown to buff to red-brown. Non-magnetic. Clasts consist of dark green-black, often porphyritic to spotted trachyte and light red-brown fine grained trachyte. 408.00 1 cm wide, white quartz + albite vein @ 25° tca with trace, spotty pyrite and possibly very fine grained galena. 	3288 3289 3290 3291 3292 3293 3294 3295 3296 3297 3298 3299 3300	399.00 399.50 400.00 401.00 402.00 403.00 404.00 405.00 406.00 407.00 407.80 408.30 409.00	399.50 400.00 401.00 402.00 403.00 404.00 405.00 406.00 407.00 407.80 408.30 409.00 410.00	0.50 0.50 1.00 1.00 1.00 1.00 1.00 1.00	Tr.	1-2 Tr.	2-3	0.38 0.02 NIL 0.01 0.02 NIL 0.01 0.01 0.01 0.02 0.05 0.02 0.01	

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INTE	RVAL	DESCRIPTION				SAN	/PLE			 48	SAVE
FROM	то		No.	From	То	Length %Rec	%Pv	%0V	%Ser	 Au	SAIS Au Cheek
		 432.10 - 432.70 Fault zone @ 55° tca. Sericite + chlorite + quartz ± pyrite. Strong sericitic shear with minor gouge developed. Comprised of 20-30% white-buff-pink quartz veining with strong, internal sericitic fracturing and shearing. Trace pyrite evident on some sericite slips within quartz vein. 	3301 3302 3303 3304 3305 3306 3307 3308 3309 3310 3311 3312 2312	429.00 430.00 431.00 432.00 432.70 433.50 434.00 435.00 436.00 436.00 436.00 436.00 436.00 436.00 436.00	430.00 431.00 432.00 432.70 433.50 434.00 435.00 436.00 436.00 438.00 439.00 440.00	1.00 1.00 1.00 0.70 0.80 0.50 1.00 1.00 1.00 1.00 1.00 1.00	Tr.	Tr. 15 1	3-5 10-20 5-10	Au, gr NIL NIL 1.19 0.02 NIL 0.01 NIL 0.01 NIL NIL	Au,Check
		 442.00 - 449.95 Patchy to pervasive "crack and seal" fracturing infilled with chlorite and/or chlorite + quartz. In places unit displays a pseudo-brecciated character. Chlorite fractures range from hairline to 0.5 cm wide and carry sporadic trace pyrite in places. 449.95 - 450.10 Fault @ 25° tca. Sericite + chlorite + quartz + albite. 0.5 cm wide fault gouge with 0.5 cm wide quartz albite vein with sericite + chlorite walls. Marks contact. Non-mineralized. 	3313 3314 3315 3316 3317 3318 3319 3320 3321 3322 3322 3323	440.00 441.00 442.00 443.00 444.00 445.00 445.00 446.00 447.00 448.00 449.00 449.80	441.00 442.00 443.00 444.00 445.00 446.00 446.00 447.00 448.00 449.00 449.00 449.80 450.50	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	Tr.	1-2 3-5	3-5	NIL NIL 0.01 NIL 0.01 0.02 0.01 0.01 NIL 0.02	
450.10	468.00	 GRAYWACKE Unit grades to a less deformed, less altered graywacke with a weak, pervasive spotty sericite and a weak foliation @ 40° tca. Graywacke contains 1-2% scattered, irregular quartz, quartz + albite and chloritic veins and stringers, up to 3 cm wide, parallel and oblique to foliation. Occasional vein has trace, spotty pyrite but generally are quite barren. 450.10 - 453.00 Sericitic and well foliated @ 20-40° tca with up to 3% quartz + albite veins and irregular masses up to 5 cm wide. Also displays a weak to moderate "crack and seal" fracturing infilled with chlorite ± quartz. Little to no 	3324 3325 3326 3327	450.50 451.00 452.00 453.00	451.00 452.00 453.00 454.00	0.50 1.00 1.00 1.00		1-2 2-3 2-3	5-10 5-10 5-7	0.01 0.01 NIL NIL	
			3328 3329	454.00 455.00	455.00 456.00	1.00 1.00		1 1-3	3-5 3-5	0.02 0.02	

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INTE	RVAL	DESCRIPTION				SAN	IPLE			AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au.Check
		 461.15 - 461.30 Sericitic shear @ 15° tca. 3-4 cm wide, moderately strong sericitic shear with 2-3% white to grey quartz and quartz breccia veinlets, ≤ 0.5 cm wide. Weak gouge developed on slips. Trace spotty pyrite. 461.30 - 468.00 Graywacke is fractured and moderately sericitic with irregular chloritic fracturing ("crack and seal") sporadic quartz ± albite veining and nil to trace pyrite. 466.35 - 466.45 Quartz ± sericite ± pyrite usin White to grey to blue. 	3330 3331 3332 3333 3334 3335 3336 3337 3338 3339 3340 3341 3342 3341	456.00 456.90 457.40 458.00 459.00 459.90 460.40 461.00 461.00 461.50 462.00 463.00 464.00 465.00	456.90 457.40 458.00 459.00 459.90 460.40 461.00 461.50 462.00 463.00 464.00 465.00 466.00	0.90 0.50 0.60 1.00 0.90 0.50 0.50 0.50 0.50 1.00 1.00 1.00 1.0	Tr.	1 2-3 1-2 Tr. 1-2 2-3 Tr. 1-2 2-3 Tr. 1-2 Tr. 1-2 1-2	2-3 3-5 2-3 1-2 1-2 1-2 2-3 3-5 1-2 2-3 3-5 3-5 3-5 3-5	Au, gr 0.02 0.04 0.02 0.03 0.01 0.02 0.01 NIL 0.01 0.01 0.03 0.02	0.01 0.02 0.01
		466.35 - 466.45 Quartz + sericite + pyrite vein. White to grey to blue quartz vein @ 70° tca with strong, internal sericitic foliation and trace spotty pyrite on fractures.	3343 3344 3345	466.00 466.50 467.10	466.50 467.10 468.00	0.50 0.60 0.90	Tr. Tr.	3-4 2-3 Tr.	3-5 3-5 Chl. 2-3	0.03 0.01 0.02	0.03 0.01 0.01
468.00	478.90	CONGLOMERATE Moderately well foliated and sericitic, polymictic pebble conglomerate. Prominent clast elongation @ 40° tca. Many clasts are pervasively sericitized and a few are notably fuchsitic. Softer clasts are stretched and altered while quartz and granitoids remain well rounded and unaltered. In part intercalated with narrow, ≤1 m wide, graywacke horizons. Upper and lower contacts sharp @ 30-40° tca.	3346 3347 3348 3349 3350 3351 3352 3353 3354 3355 3356	468.00 469.00 470.00 471.00 472.00 473.00 474.00 475.00 476.00 477.00 478.00	469.00 470.00 471.00 472.00 473.00 474.00 475.00 476.00 476.00 478.00 478.90	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00			• Note 1	0.18 0.08 0.31 0.20 0.37 0.35 0.03 NIL 0.02 0.24 0.01	0.10 0.16 0.24 0.21 0.21 0.31 0.02 0.01 0.02 0.21 0.01
478.90	480.70	MUDSTONE Massive, soft sericitic yellow-green to grey-brown, aphanitic mudstone. Moderate vein fracture set @ 30° tca with 1-2% quartz \pm chlorite veins and stringers, up to 1 cm wide, which carry trace sporadic pyrite.	3357 3358 3359 3360	478.90 479.50 480.00 480.50	479.50 480.00 480.50 481.00	0.60 0.50 0.50 0.50	Tr. Tr.	1-2 1-2 5-10	5-10 5-10 3-5	0.01 0.03 0.03 0.02	

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INTE	RVAL	DESCRIPTION				SAN	MPLE				ASSAYS		
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser		Au, g/t	Au.Check	
480.70 483.10	483.10 499.30	GRAYWACKE 480.70 - 481.00 Silicified zone comprised of irregular white-buff to grey quartz flooding and silicified graywacke. Section has irregular sericitic suturing and trace disseminated pyrite. CONGLOMERATE Massive to weakly foliated. Pristing polymictic insperoidal pebble	3361 3362 3363	481.00 481.50 482.00	481.50 482.00 483.00	0.50 0.50 1.00		Tr.	1-2 1-3	Chi.	0.01 0.01 0.01		
		conglomerate. Framework to matrix supported and poorly sorted. In part intercalated with graywacke and mudstone horizons up to 2.0 m wide.	3365	498.70	499.30	0.60	1r.	Tr. Tr.	1-3 1-2		0.01 0.01		
499.30	505.00	GRAYWACKE/MUDSTONE Finely interdigitated graywacke + mudstone horizons from a few cm to 0.75 m wide. Moderately well foliated @ 30° tca and sericitized. Units contains $3-4\%$ irregular quartz + albite veins, stringers and pods, up to 2 cm wide, which carry sporadic trace pyrite \pm chalcopyrite + galena. Lower contact is a sharp, strong chloritic mud slip @ 35° tca. 504.30 - 505.00 Strongly deformed and foliated.	3366 3367 3368 3369 3370 3371	499.30 500.20 501.00 502.00 503.00 504.00	500.20 501.00 502.00 503.00 504.00 505.00	0.90 0.80 1.00 1.00 1.00 1.00	Tr. Tr. Tr.	3-4 1 2-3 Tr. 1-2 3-4	5-10 3-5 3-5 3-5 3-5 5-10		0.04 0.03 0.04 0.02 0.03 0.02		
505.00	510.00	 CONGLOMERATE 505.00 - 507.50 Moderately well foliated, sericitic conglomerate with prominent clast elongation @ 45° tca. Weakly to moderately sericitized. 507.50 Hole re-entered August 13, 1992. 507.50 - 510.00 Massive to moderately well foliated, moderately sericitized polymictic pebble conglomerate. Sericite occurs as tight shear slips @ 30-50° tca and as a finely disseminated sericite in matrix. Soft sedimentary clasts are notably stretched and strongly sericitic. Some volcanic clasts are fuchsitic. Quartz and feldspar, porphyritic clasts are well rounded. Trace disseminated pyrite. Sharp lower contact @ 20° tca. 	3372 3373 3374 3953 3954 3955	505.00 505.50 506.50 507.50 508.00 509.00	505.50 506.50 507.50 508.00 509.00 510.00	0.50 1.00 1.00 0.50 1.00 1.00	Tr. Tr.	Tr. Tr. Tr. 1 1-2	3-5 3-5 3-5 3-5 5-10 5-10		0.02 0.20 0.23 0.42 0.98 0.11	0.01 0.09 0.35 0.94	
510.00	515.60	GRAYWACKE Fine grained, chloritic + sericitic, medium to light grey-green graywacke with minor scattered, angular mudstone chips and very minor fuchsitic altered lithics.											

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INTE	ERVAL	DESCRIPTION				SAN	APLE			ASSAYS	
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au. g/t	Au.Check
		 510.00 - 515.00 Massive to weakly foliated, pervasively sericitic with 5% sericite in groundmass surrounding visible quartz grains. Mudstone chips are sericitic and minor volcanics are fuchsitic. 511.50 Fault @ 40° tca. Tight, sharp sericite slip with a 3 mm wide quartz veinlet on slip wall. 511.50 - 512.55 Graywacke is light yellow-green pervasively sericitized and weakly foliated. 512.55 Tight sericitic slip @ 40° tca. 512.20 - 512.55 Open, vuggy quartz vein, 0.5 cm wide, on a sharp, sericitic fault slip @ 10° tca. 515.00 - 515.60 Fault (ductile shear) @ 35° tca. Well foliated to schisto se to sheared graywacke with numerous, tight strong sericitic slips. Interstitial to slips graywackes are moderately sericitic and foliated and contain minor irregular quartz + albite veins and pods. Trace patchy disseminated pyrite. Shear zone marks sediment/volcanic 	3956 3957 3958 3959 3960 3961 3962 3963	510.00 511.00 511.50 512.60 512.60 513.10 514.00 515.00	511.00 511.50 512.00 513.10 514.00 515.00 515.70	1.00 0.50 0.50 0.60 0.50 0.90 1.00 0.70	Tr. Tr. Tr.	2-3 1-2 1-2 1-2 1-2 1-2 1-2 1-2	5-10 5-7 10-15 10-15 5-7 5-7 5-7 10-20	0.01 0.01 NIL NIL NIL NIL NIL 0.01	AUJUIECK
515.60	556.80	 ASH/LAPILLI TUFF Massive, chloritic to hematitic, fine grained dark green to dark red-brown ash to a monolithic lapilli tuff comprised of 2-5% angular to subrounded red trachyte/syenite clasts up to 3 cm (same as monolithic block tuff but finer grained). Strongly magnetic. Contains 1-2% ubiquitous quartz ± albite veining up to 2 cm wide. 515.60 - 517.00 Weak to moderate fracturing and patchy sericitization as alteration halos adjacent to narrow, ≤ 0.5 cm wide, barren quartz + albite stringers. Weakly foliated @ 45° tca. 525.75 - 526.15 Irregular quartz + chlorite vein with sericitized wall rock fragments. Trace spotty pyrite ± chalcopyrite. 	3964 3965 3966 3966 3968 3969 3970 3971 3972 3973	515.70 516.50 517.00 525.70 526.20 527.00 537.50 538.00 538.70	516.50 517.00 518.00 525.70 526.20 527.00 528.00 538.00 538.70 538.70	0.80 0.50 1.00 0.70 0.50 0.80 1.00 0.50 0.70 0.70	Tr.	1-2 1-2 50 2-3 Tr. 2-3 Tr. 2-3 Tr.	5-7 3-5 Tr. 15 2-3 Tr. Tr. Tr.Gal	0.03 0.01 0.02 0.01 NIL NIL NIL NIL NIL 0.02	

HOLE: AK-92-42

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INTE	RVAL	DESCRIPTION				SAN	IPLE					AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser			Au, g/t	Au,Check
		 539.50 - 539.80 Quartz breccia vein. Buff-pink to brown quartz + carbonate (dolomite?) + barite(?) vein with angular wall rock fragments up to 3 cm wide, (sucrosic, granular texture). Very irregular contacts, quite soft. Vein contains minor blebby pyrite, chalcopyrite and trace galena. 546.00 - 549.00 Set of light buff-brown to pink sucrosic textured ± quartz(?) carbonate (dolomitic) + barite(?) breccia veins from 0.5-5 cm wide @ 55° tca. Veins contain angular wall rock fragments (weakly altered) and very minor, spotty 	3974 3975 3976 3977 3978 3979 3980	539.40 539.90 540.50 545.00 545.90 546.50 547.00	539.90 540.50 541.00 545.90 546.50 547.00 547.50	0.50 0.60 0.50 0.90 0.60 0.50 0.50	Tr. Tr. Tr. Tr.	60 2-3 2-3 2-3	Tr. Tr. Tr. Tr.	Gal. Cpy. Cpy. Cpy.	Сру.	NIL 0.01 0.01 0.01 0.01 NIL NIL	
		 pyrite ± chalcopyrite ± galena. No alteration halos. 547.50 - 547.95 A 40-45 cm wide vein as above with trace, spotty pyrite and 2-3% galena. 551.60 Fault @ 15° tca. Chlorite + quartz + albite. Sharp chloritic slip with a 1 cm quartz + albite vein. 	3981 3982 3983	547.50 548.00 549.00	548.00 549.00 550.00	0.50 1.00 1.00	Tr. Tr.	75 2-3	Tr. Tr.	Сру. Сру.	2-3% Gal.	NIL NIL 0.01	
	556.80	E. O. H. Casing left in hole.				1	2 - - - -						
		Additional Assays			·								
		Ag Cu Mo Pb Zn Te Sample No. (ppm) (ppm) (ppm) (ppm) (ppm) (ppm) 3978 0.1 205 3 4 76 1 3979 0.1 184 4 5 81 1 3980 0.1 109 4 5 47 1 3981 0.9 507 2 5320 20 1 3982 0.5 107 3 29 88 1											
		·											

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Amalgamated Kirkla
Teck
L 491651
June 26, 1992
July 7, 1992

malgamated KirklandDATE LOGGEDcckLOGGED BY491651DRILLED BYine 26, 1992CORE LOCATIONihy 7, 1992DOWNHOLE SURVEYORSURVEY INSTRUMENT

June 27, 1992 - July 8, 1992 Mark Masson Heath & Sherwood Kirkland Lake Warehouse B.M.C.I. Sperry Sun

EASTING 8095.5 NORTHING 9985.0 ELEVATION 333.3 COLLAR SURVEY Northland Technical LENGTH 648.1 UNITS metres CORE SIZE NQ

Depth	Method	Azimuth	Dip
Note:	See table at for downhol	end of sumn surveys	ary log

PURPOSE To test "102"/"103" structures.

COMMENTS "102" structure @ 448.40 - 470.50, 22.10 m. "103" structure @ 549.00 - 563.80, 14.80 m. "104" structure @ 591.00 - 607.60, 16.60 m. SIGNED BY

(W. Benham)

	SUM	ASSAY SUMMARY					
INTERVAL From To	DESCRIPTION	INTERVAL From To	DI	ESCRIPTION	INTERVAL From To	LENGTH in metres	AVERAGE Au g/t
0.00 4.00 4.00 7.00 7.00 19.80 19.80 57.50 57.50 66.10 66.10 68.70 68.70 140.80 140.80 169.30 169.30 183.60 193.40 240.90 240.90 317.60 591.70	OVERBURDEN IAPILLI TUFF/GRAYWACKE/MUDSTONE ASH TUFF IAPILLI TUFF/ASH TUFF 27.40 - 28.20 Fault @ 10-15° tca. 56.00 - 57.50 Fault @ 0-15° tca. ASH TUFF 66.10 Fault @ 25° tca. IAPILLI/BLOCK TUFF ASH/IAPILLI TUFF IAPILLI/BLOCK TUFF 140.60 - 156.00 Fractured, sericitic, 1-3% pyrite. IAPILLI TUFF 182.20 - 183.60 Sheared @ 10-25° tca. ASH TUFF Magnetite beds @ 20-30° tca. IAPILLI TUFF Magnetite beds @ 20-30° tca. IAPILLI TUFF Magnetite beds @ 25-35° tca. 297.30 - 298.50 Fault @ 15° tca. GRAYWACKE 447.35 - 448.40 Foult @ 5° tca.	591.70 597.00 597.00 597.90 597.90 648.10	448.40 - 470.50 454.20 - 454.30 485.00 - 543.50 543.50 - 569.80 549.10 - 549.20 549.20 - 552.00 552.00 - 554.85 563.60 569.80 - 575.30 CONGLOMERATE Sericite, foliated @ veins with pyrite ± SILTSTONE/MUDS Sericitic. GRAYWACKE 597.90 - 626.80	1% quartz + albite ± chlorite ± pyrite veins. Fault @ 25° tca, molybdenite + pyrite. Bleached, sericitic. Patchy dark blue-grey, pyritic and silicified zone. Quartz + chlorite + sericite + pyrite vein @ 60° tca, 1-2% py. Trace-1% pyrite, silicified. Bleached, 1-2% albite clots. 2 cm quartz + pyrite vein @ 70° tca, 2% pyrite. Sericitic. 3 40-45° tca., 1-2% quartz + albite galena. STONE	536.00 563.80 including 536.00 537.50 546.00 547.00 549.00 563.80 including 549.00 553.00 554.90 555.50 563.30 563.80 591.00 596.00 606.70 607.60	27.80 1.50 1.00 14.80 4.00 0.60 0.50 5.00 0.90	0.18 0.19 0.15 0.29 0.67 0.28 2.31 0.15 0.11

HOLE: AK-92-43

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PROPERTY TOWNSHIP	Amalgamated Kirkland Teck	DATE LOGGED LOGGED BY	June 27, 1992 - July 8, 1992 Mark Masson	EASTING NORTHING	8095.5 9985.0	Depth	Method	Azimuth	Dip
STARTED COMPLETED	June 26, 1992 July 7, 1992	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Heath & Sherwood Kirkland Lake Warehouse B.M.C.I. Sperry Sun	ELEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	333.3 Northland Technical 648.1 metres NQ	Note:	See table at for downhole	end of sumn surveys	iary log
PURPOSE	To test "102"/"103" struc	tures.						1	
COMMENTS	"102" structure @ 448.49 "103" structure @ 549.00 "104" structure @ 591.00	0 - 470.50, 22.10 m. 0 - 563.80, 14.80 m. 0 - 607.60, 16.60 m.	SIGNED BY (W. Be	nham)					

	SUMN	MARY LOG		ASSAY SUMMARY				
INTERVAL From To	DESCRIPTION	INTERVAL From To	DESCRIPTION	INTERVAL From To	LENGTH in metres	AVERAGE Au g/t		
	 597.90 - 608.00 2-4% quartz + albite + chlorite veins ± pyrite. 606.70 - 607.50 Quartz + albite + sericite + pyrite veins @ 30° tca., 1-2% pyrite. 624.30 - 626.80 Foliated @ 60° tca. 626.80 - 648.10 Chloritic, weakly sericitic. 							
648.10	ЕОН							

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PROPERTY TOWNSHIP	Amalgamated Kirkland Teck	DATE LOGGED LOGGED BY	June 27, 1992 - July 8, 199 Mark Masson	92	EASTING NORTHING	8095.5 9985.0	Depth	Method	Azimuth	Dip
CLAIM No. STARTED COMPLETED	L 491651 June 26, 1992 July 7, 1992	DRILLED BY CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Heath & Sherwood Kirkland Lake Warehouse B.M.C.I. Sperry Sun	:	ELEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	333.3 Northland Technical 648.1 metres NQ	Note:	See table b surveys	clow for dov	/nhole
PURPOSE	To test "102"/"103" struc	tures.								
COMMENTS	"102" structure @ 448.40 "103" structure @ 549.00 "104" structure @ 591.00	0 - 470.50, 22.10 m. 0 - 563.80, 14.80 m. 0 - 607.60, 16.60 m.	SIGNED BY	(W. Benham)						

				SUM	MARY LOG				ASSAY SUMMARY				
INTERVAL From To		DESCRII	PTION		INTERVAL From To		DESCRI	PTION		INTERVAL From To	LENGTH in metres	AVERAGE Au g/t	
	Depth	Method	Azimuth	Dip		Depth	Method	Azimuth	Dip			i	
	Collar	Compass	341	73		385.0	Sperry Sun	319	59				
	23.0	Sperry Sun	338	72		425.0	Sperry Sun	318	58				
	30.0	Acid		72		529.0	Sperry Sun	317	54				
	60.0 Acid 71					574.0	Sperry Sun	319	51				
	90.0	Acid		69.5		620.0	Sperry Sun	320	50				
	129.0	Sperry Sun	330	70									
	161.0	Sperry Sun	331	69.5									
	187.0	Sperry Sun	329	69									
	255.0	Sperry Sun	327	68									
	325.0	Sperry Sun	325	62									
	337.0	Sperry Sun	320	61.5									

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INTE	RVAL	DESCRIPTION	SAMPLE								ASSAYS		
FROM	TO		No.	From	То	Length 9	%Rec	%Py	%QV	%Ser	Au, g/t	Au,Check	
0.00	4.00	OVERBURDEN											
4.00	7.00	 IAPILLI TUFF/GRAYWACKE/MUDSTONE Mixed, chloritic to sericitic, interdigitated zone comprised predominantly of a dark grey lapilli tuff with buff-brown, angular clasts up to 2 cm wide. This tuff is notably mixed with lithic graywacke which has appreciable amounts of quartz + jasper within a matrix of the lapilli tuff (Facies change). Section also contains minor amounts of fine grained bedded mudstone up to 15 cm wide. Non-magnetic. All units are moderately well foliated with abundant tight sericite slips @ 30° tca. Lower contact is a tight sericite + ankerite slip @ 30° tca. 4.00 - 5.00 Shear zone @ 30-40° tca. Chlorite + sericite + ankerite. Moderately ankerite stained, barren chlorite + sericite ± calcite shear. Open, rusty vugs in places. 											
7.00	19.80	ASH TUFF Chloritic \pm sericitic \pm hematitic, massive to weakly foliated @ 30-40° tca, grey-green to purple, fine grained to very fine grained ash with <1% minor scattered lapilli clasts. In places unit is in part intermixed with minor jasperoidal graywacke horizons, up to 75 cm wide and minor lapilli tuff horizons (≤ 1 m). Contacts are gradational over 5-15 cm. Patchy, strong magnetics.				ı							
19.80	57.50	 IAPILLI TUFF/ASH TUFF Massive, chloritic ± hematitic, dark grey-green to purple, heterolithic lapilli tuff, quite variable from lapilli-ash tuff. Comprised of 5-15% angular to subrounded lapilli clasts from 1-2 mm to 5 cm (avg. 1 cm). Clasts are light brown, buff, pink and dark green volcanics (trachyte) in a very fine grained ash matrix. Patchy to pervasively magnetic. In part, interdigitated with ash tuff horizons up to 1 metre wide. Weakly bedded @ 40° tca. Predominant vein fracture set @ 10-15° tca (quartz ± albite ± calcite). Contacts are obscured by cross faults. 27.40 - 28.20 Fault @ 10-15° tca. Chlorite + sericite + ankerite + quartz + calcite. Tight strong chloritic break with moderate gouge developed up to 2 mm wide. Infilled with barren white-pink quartz ± albite veins up to 1 cm and smeared with calcite on slip walls. Open, ankeritic stained vugs in places. Broken rubbly core. 											

HOLE: AK-92-43

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INTE	RVAL	DESCRIPTION	SAMPLE							ASSAYS		
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check	
		 39.10 - 39.25 Fault @ 40° tca. Sericite + ankerite ± quartz + calcite. Open vuggy ankerite stained shear with a 4 cm wide fractured quartz + calcite vein. 49.10 - 49.70 Fault @ 15° tca. Sericite + ankerite. Broken rubbly section with open, rusty barren shear. 56.00 - 57.50 Fault @ 0-15° tca. Sericite + chlorite + ankerite ± quartz + calcite. Open, rubbly, ankeritic stained shear sub-parallel tca. Moderate fault gouge developed. 										
57.50	66.10	ASH TUFF Massive, chloritic \pm hematitic, fine grained grey-green to red-brown ash tuff comprised of fine broken crystal and lithic fragments, up to 2-3 mm wide, in an aphanitic, ash groundmass. Typically non-magnetic.										
		 65.50 Fault @ 45° tca. Barren, rubbly sericitic shear with moderate gouge developed. 65.80 - 66.00 Fault @ 10° tca. Chloritic ± calcitic. 1-2 cm wide, chlorite breccia vein with angular wall rock fragments up to 1 cm. Vein walls are sharp tight chlorite slips with smeared calcite. 66.10 Fault contact @ 25° tca. Tight, strong sericitic shear with weak to moderate gouge. 				1						
66.10	68.70	LAPILLI/BLOCK TUFF Massive, chloritic to hematitic, coarse lapilli-block tuff comprised of 10- 20% angular to subrounded lapilli clasts from 0.5-10+ cm in a fine grained ash groundmass. Prominent clast type (75%) is a dark red to pink, fine grained to spotted trachyte. Lesser amounts of dark green to buff-brown clasts. Strongly magnetic. Lower contact sharp and intact @ 35° tca.										
68.70	140.80	ASH/LAPILLI TUFF Massive, chloritic to hematitic, grey-green to grey-brown to mauve, fine grained ash to fine grained lapilli tuff. Poorly sorted, varies rapidly from a very fine grained ash to a fine grained lapilli tuff comprised of 5-15% angular subrounded heterolithic clasts (avg. 2-3 mm) in a fine grained ash matrix. Weakly bedded @ 55° tca with fine magnetic beds, up to 2 mm wide. Patchy magnetics, due to frequent variability in lithologies. Undeformed, unaltered, non-descript. Lithology widths range from 10-20 cm to 3-4 m wide.										

HOLE: AK-92-43

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INTE	RVAL	DESCRIPTION				SAN	IPLE			AS	SAYS
FROM	то		No.	From	To	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au, Check
		 96.00 - 96.10 Fault @ 30° tca. Sericite + quartz + albite ± calcite. Strongly sericitized, schistose zone with sharp, strong slip walls. 3% white-pink quartz + albite veins and boudinaged pods. Non-mineralized. 138.30 - 138.70 Fault slip @ 15° tca. Chlorite + quartz + albite. 1-2 mm wide, sharp chloritic slip 	3375 3376 3377 3378 3379	136.00 137.00 138.00 139.00 140.00	137.00 138.00 139.00 140.00 140.80	1.00 1.00 1.00 1.00 0.80	Tr. Tr.	Tr. 1-2 2-3 1	1-2 3-5 2-3 1-2	0.03 0.01 0.01 0.01 0.02	
140.80	169.30	LAPILLI/ASH TUFF Unit varies from dark grey-brown to green with a weak to moderate pervasive sericitization of groundmass. Where unit displays distinct lapilli clasts they often have diffuse indistinct boundaries. Dirty, mottled texture. Pyrite is pervasive to patchy (trace-3%) generally located on irregular sericitic cleavages and flooded areas. Typically non-magnetic.									
		 140.80 - 156.00 Ash tuff is weakly crenulated and fractured with weak pervasive sericite alteration and pyritization. Fine hairline fractures and cleavages are lined with very fine grained pyrite (1-3%) which is patchy to pervasive. This zone may be equivalent to pyritic tuff on BL 100 N @ 82+00 E. Weakly deformed pyritic tuff. 	3380	140.80	141.40	0.60	1-2	Tr.	2-3	0.03	
		 141.50 Fault @ 20° tca. Sericite + quartz + albite + pyrite ± calcite. 1-2 cm wide, white pseudo-brecciated quartz + albite vein with strong internal sericitic cleavage. Sericite slips are dark grey in places and smeared with very fine grained pyrite. 153.30 - 153.60 Quartz + sericite + pyrite zone. Set of irregular white quartz + albite veins @ 40° tca from 1-3 cm wide. 	3381 3382 3383 3384 3385 3386 3387 3388 3389 3390 3391 3392 3393 3393 3394 3395	141.40 142.00 142.50 143.00 144.00 144.90 145.50 146.00 147.00 148.00 149.00 150.00 151.00 152.00 153.00	142.00 142.50 143.00 144.00 144.90 145.50 146.00 147.00 148.00 150.00 151.00 151.00 152.00 153.00	0.60 0.50 1.00 0.90 0.60 0.50 1.00 1.00 1.00 1.00 1.00 1.00 1.0	2-3 Tr. Tr. Tr. Tr. Tr. Tr. Tr. Tr. Tr. Tr.	2-3 1 1 Tr. 1-3 1 Tr. 1-2 1 Tr. NIL NIL NIL NIL NIL NIL	3-5 2-3 1-2 1-2 1-2 1-3 1-2 1-2 2-3 1-2 1-2 2-3 2-3 2-3 2-3 2-3 3-5 2-2	0.02 0.03 NIL 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.0	
		quartz ± alone veins @ 40° tca from 1-3 cm wide. Proximal to veins unit is sericitized and moderately well foliated and contains 2-4% very fine grained pyrite on cleavages.	3396 3397 3398 3399	153.70 154.50 155.00 156.00	154.50 155.00 156.00 157.00	0.80 0.50 1.00 1.00	Tr. 1 Tr. Tr.	NIL NIL Tr. Tr.	2-3 2-3 2-3 2-3	0.01 0.02 0.01 0.02	

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INTE	RVAL	DESCRIPTION				SAN	IPLE			AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
169.30	183.60	157.70 - 158.60 Fault slip @ 10-15° tca with a 1-2 cm wide, dislocated quartz ± albite vein.	3400 3401 3402 3403 3404 3405 3406 3406 3406 3407 3408 3409 3410 3411 3412 3413	157.00 157.70 158.70 159.50 160.00 161.00 162.00 163.00 164.00 165.00 166.00 166.00 168.00 168.50	157.70 158.70 159.50 160.00 161.00 162.00 163.00 164.00 165.00 165.00 166.00 166.00 168.50 168.50 169.30	0.70 1.00 0.80 0.50 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Tr. Tr. Tr1 Tr1 1-2 Tr. Tr. NIL Tr. Tr. Tr. NIL	Tr. 5-10 Tr. Tr. 2-3 Tr. Tr. Tr. NIL Tr. NIL Tr. NIL Tr.	2.3 3.5 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3	0.01 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.01	
169.30	183.60	 LAPILLI TUFF Massive to weakly foliated, chloritic + sericitic ± pyritic, light grey-green heterolithic lapilli tuff. Comprised of 5-10% angular lapilli clasts from 0.2-3 cm (avg. 1 cm) in a very fine grained grey ash matrix. Clasts are light green, sericitic spotted trachyte, grey-brown to buff and dark green volcanics in roughly equal proportions. Matrix displays weak to moderate pervasive sericite. Non-magnetic, non-deformed. In places matrix displays a dark grey-brown colouration due to very fine grained to aphanitic, semi-massive pyrite flooding. Pyrite occurs as fine patchy pyrite in groundmass and semi-massive aphanitic pyrite on a weak to moderate wispy foliation interstitial to lapilli clasts @ 10-30° tca. 173.90 - 173.95 Fault slip @ 45° tca. Tight chloritic slip, bounded by a 3-4 cm wide, milk white quartz + albite vein. 176.20 Fault slip @ 25° tca. Sericite + quartz + albite + pyrite. Tight, 2-3 mm wide, sericite slip with weak gouge developed. Slip face has a blue-grey tinge due to fine grained smeared pyrite. 176.20 - 178.50 Lapilli tuff displays a weak to moderate wispy foliation @ 10-30° tca which carries trace-3% aphanitic pyrite. 	3414 3415 3416 3417 3418 3419 3420 3421 3422 3423 3424 3425 3426 3427	169.30 170.00 171.00 172.00 173.00 173.80 174.50 175.00 175.00 176.00 177.00 178.00 178.00 178.00 179.00 180.00	170.00 171.00 172.00 173.00 173.80 174.50 175.00 176.00 176.00 178.00 178.00 178.50 179.00 180.00 180.50	0.70 1.00 1.00 1.00 0.80 0.70 0.50 1.00 1.00 1.00 0.50 0.50 1.00 0.50	Tr. Tr. 1-2 Tr. 1-3 1-3 1-3 1 Tr. Tr. Tr.	Tr. Tr. 1-2 Tr. Tr. 1-2 1-2 1-2 1-2 Tr. Tr. 1-2 Tr.	2-3 2-3 3-5 2-5 2-5 2-5 2-5 2-5 3-5 3-5 3-5 3-5 2-3 2-3 2-3	0.01 0.02 NIL 0.01 NIL NIL 0.02 0.01 0.02 0.01 0.02 0.01 0.01 0.01	

HOLE: AK-92-43

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INTE	RVAL	DESCRIPTION	SAMPLE							ASSAYS		
FROM	TO		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check	
		 180.50 - 181.00 Moderate sericite foliation @ 15° tca with 2-5 mm wide, sericite ± chlorite slips at 180.50 and 181.00 m. Interstitial to slips tuff contains 1-3% fine grained pyrite on wispy foliation. Cross-cut by a few late quartz + albite veins @ 90° to foliation. 182.20 - 183.60 Sericite shear @ 10-25° tca. Sericite + quartz. Moderately deformed sericitized tuff with an irregular wispy foliation developed. Cut by 3% white quartz + albite veins, stringer and pods. Trace spotty pyrite. Marks contact from lapilli-ash tuff. 	3428 3429 3430 3431	180.50 181.00 182.00 183.00	181.00 182.00 183.00 183.70	0.50 1.00 1.00 0.70	1-3 Tr. Tr. Tr.	1-2 Tr. 2-3 2-3	3-5 2-3 5-10 5-10	0.01 NIL NIL NIL		
183.60	193.40	ASH TUFF Massive, fine to very fine grained, and chloritic, dark grey-brown, ash tuff with $\leq 1\%$ scattered lapilli clasts. Patchy brown mottled texture in places. Non-magnetic. Lower contact is moderately sheared and sericitic.	3432 3433 3434	183.70 184.50 185.00	184.50 185.00 186.00	0.80 0.50 1.00		Tr. Tr.	2-3 2-3	NIL 0.01 0.01		
193.40	240.90	 ASH TUFF Massive to weakly bedded, light grey, very fine grained and well sorted ash tuff comprised of very fine grained lithics (≤ 1 mm) in an aphanitic, greywhite groundmass. Bedding defined by narrow often discontinuous magnetite beds, up to 2 mm wide, @ 20-30° tca. Very homogeneous. Patchy strong magnetics. Lower contact sharp and intact @ 30° tca. 193.40 - 193.60 Fault @ 40° tca. Sericite + chlorite schist. Nonmineralized. 204.50 - 206.00 2-3 cm wide, barren, irregular quartz + albite vein @ 5-10° tca (broken, rubbly). 205.80 - 205.90 Fault @ 55° tca. Sericite + quartz + albite. 5 cm wide, white-pink quartz + albite vein with internal sericitic foliation and tight slip walls. 223.85 - 224.10 Diabase dyke @ 20-35° tca. Massive, very fine grained, dark green with chilled contacts up to 3 mm wide. Strongly magnetic. 233.60 - 234.30 Diabase dyke @ 20° tca. As above, massive, very fine grained. Tight sharp contacts, moderately magnetic. 				4						
240.90	317.60	LAPILLI TUFF Massive to moderately well foliated with prominent clast elongation @ 25- 35° tca. Somewhat variable from light to dark green to brown, chloritic \pm sericitic + hematitic, heterolithic lapilli tuff comprised of 5-10% angular										

HOLE: AK-92-43

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INTE	RVAL	DESCRIPTION	SAMPLE						ASSAYS		
FROM	ТО		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		lapilli clasts from 2-3 mm to 5 cm (avg. 1 cm) in a very fine grained ash groundmass. Clasts are light to dark green, buff-brown and light grey trachyte in roughly equal proportions. In part intercalated with ash tuff of equivalent composition. Patchy strong magnetics. Lower contact is a sharp, tight chloritic slip @ 30° tca.									
		 244.30 - 244.50 Quartz + albite + sericite shear @ 30° tca. Barren, weak sericite shear infilled with 2-3 cm wide, white-pink quartz ± albite vein. 259.00 - 263.50 Unit is moderately well foliated @ 30° tca, weakly to moderately sericitic. 									
		 265.30 - 266.60 Siltstone horizon, medium green, aphanitic siltstone with sharp, irregular contacts. 278.00 - 278.60 Spotted dyke @ 10° tca. (diabase?). 4 cm wide, porphyritic dyke comprised of 5-7% subhedral phenocrysts (lath-shaped, pseudo hexagonal cross section) 									
		297.30 - 298.50 Fault zone @ 15° tca. Very strong chloritic mud gouge break. Broken rubbly open fault. Surrounding tuff is sericitic foliated and fractured from 295.50 - 302.00 m with numerous tight mud slips throughout. Barren non- mineralized minor quartz + albite veining				I					
		313.40 Fault @ 70° tca. Chlorite + quartz + albite. 1-2 cm wide, barren quartz + albite vein bounded by sharp tight chloritic slips.									
317.60	591.70	GRAYWACKE Massive, chloritic to sericitic, light to dark green, fine grained graywacke with 1% scattered angular mudstone chips and jasper fragments. Undeformed with weak pervasive spotty sericite. In part unit grades to pebbly graywacke. Unit contains 1-2% barren white quartz \pm albite stringers, up to 3 cm wide, throughout which occasionally contain minor amounts of chalcopyrite. Prominent vein set @ 20° tca.									
		 347.40 Fault @ 25° tca. Chlorite + quartz ± albite. 3 cm wide, white-buff quartz vein with internal barren chloritic suturing. Bounded by sharp chloritic slips. 350.30 Fault @ 45° tca. Chlorite + quartz ± albite. 1-2 cm wide, fault gouge mud. 	3435 3436 3437 3438 3439 3440	346.00 347.00 348.00 349.00 350.00 350.80	347.00 348.00 349.00 350.00 350.80 351.40	1.00 1.00 1.00 1.00 0.100 0.80 0.60	Tr. Tr.	1 2 Tr. 1 2-3 Tr.	Tr. Tr. Tr. 3-5 Cpy. 2-3	0.01 0.01 0.01 0.01 0.01 0.03	

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INTE	RVAL		DESCRIPTION					SAM	IPLE				AS	SAYS
FROM	то			No.	From	То	Length %	6Rec	%Py	%QV	%Ser		Au, g/t	Au,Check
		350.30 - 351.90 351.90 - 353.00	Graywacke is moderately foliated, moderately sericitic and contains 3% barren quartz and quartz + chlorite veins up to 1 cm wide. Fault @ 5.10° to Chlorite + sericite + quartz irregular	3441 3442	351.40	351.90	0.50		Tr. Tr	2-3	3-5	Crw.	0.02	
		351.90 - 353.00	wisny slips subparallel tea with weak gouge developed.	3442	352.50	353.20	0.00		Tr.	5-7	5-10	Cpy. Cpy.	0.02	
			Quartz \pm albite vein is white-brown with internal scricitic	3444	353.20	354.00	0.80			Tr.	2-3	-1).	0.02	
			suturing and fracturing. Vein carries trace spotty pyrite	3445	354.00	355.00	1.00			1	3-5		0.01	
			and minor chalcopyrite clots.	3446	355.00	356.00	1.00		1	Tr.	2-3		NIL	
				3447 3448 3449 3450 3451	395.00 396.00 397.00 398.00 399.00	396.00 397.00 398.00 399.00 399.50	1.00 1.00 1.00 1.00 0.50						0.02 0.01 0.02 0.01 0.01	
		399.90	3 cm wide, white quartz + albite vein @ 80° tca. Vein has	3452	399.50	400.00	0.50		Tr.	1	2-3		NIL	
			strong internal sericitic suturing and fractures which carry	3453	400.00	401.00	1.00						0.01	
			sericite slips.	3455	401.00	402.00	1.00						0.01	
				3456 3457 3458 3459 3460 3461	441.00 442.00 443.00 444.00 445.00 446.00	442.00 443.00 444.00 445.00 446.00 446.80	1.00 1.00 1.00 1.00 1.00 0.80		Tr.	Tr. Tr. Tr.	Tr. Tr. Tr. 1-2		0.01 0.02 0.02 0.01 0.02 0.01	
		147 35 - 148 40	Fault @ 5° too Sericite + quartz + albite Strong	3462	446.80	447.30 448.00	0.50	05	Tr.	1r. 2.3	2-3		0.01 NII	
		447.55 - 446.40	Frank (a) 5 tea. Schene + quarte + alone, shong irregular sericite slip subparallel tea with 3% patchy quarte \pm albite veining up to 2 cm wide. Weak mud gouge developed, broken rubbly. Very minor pyrite evident as small clots.	3464	448.00	448.50	0.50	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Tr.	1-2	5-7		NIL	
		448.40 - 455.00	Graywackes are moderately deformed and sericitic with	3465	448.50	449.00	0.50		Tr.	Tr.	3-5		NIL	
			trace spotty pyrite. Unit also contains 1% while quartz +	3400	449.00	450.00	1.00		17.	1r. 1	3-5		NIL 0.01	
			occasionally have trace pyrite \pm chalcopyrite in places.	3468	451.00	452.00	1.00		Tr.	Tr.	3-5		0.01	
				3469	452.00	453.00	1.00			Tr.	3-5		0.01	
		453.10 - 453.30	Two, 1-2 cm wide, quartz + albite veins @ 50° tca with	3470	453.00	453.50	0.50		Tr.	2	5-7		0.04	
			trace pyrite on internal sericitic suturing. Graywackes are quite sericitic proximal to veins.	3471	453.50	454.00	0.50				3-5		0.03	

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INTE	RVAL	DESCRIPTION				SAN	IPLE			AS	SAYS
FROM	ТО		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		 454.20 - 454.30 Fault @ 25° tca. Chlorite + sericite + quartz. 5 cm wide, blue-green quartz + chlorite vein bounded by strong slip faces with moderate to strong mud gouge. Trace spotty pyrite. Fault slips have a blue-grey tinge and may contain smeared molybdenite + pyrite. 	3472 3473 3474 3475 3476 3477 3478 3479	454.00 454.50 455.00 456.00 457.00 458.00 459.00 459.00	454.50 455.00 456.00 457.00 458.00 459.00 460.00 460.00	0.50 0.50 1.00 1.00 1.00 1.00 1.00 0.50	Tr. Tr. Tr. Tr. Tr.	2-3 Tr. Tr. Tr. Tr. Tr.	5-7 3-5 Tr. Tr. Tr. 2-3 3-5	0.02 0.01 0.03 0.06 0.02 0.02 0.02	
		 460.50 - 461.85 Quartz ± albite + chlorite ± pyrite vein @ 10° tca. Very irregular white to grey quartz + albite vein with irregular internal fracturing infilled with sericite + chlorite and minor pyrite + chalcopyrite. 461.05 - 461.45 A 2-3 mm wide, dark chlorite vein or slip with 2-3% chlorite price 	3480 3481 3482 3483 3483	460.50 461.00 461.50 462.00 463.00	461.00 461.50 462.00 463.00 464.00	0.50 0.50 0.50 1.00 1.00	Tr. 1 Tr.	20-30 10-15 2-3 Tr.	5-7 5-7 3-5 2-3	0.02 0.03 0.02 0.02 0.02 0.02	
		 apnantic pyrite. 464.00 - 464.50 Fault slip @ 10° tca. Chlorite + sericite + quartz. 1-2 mm wide, dark grey chlorite + sericite slip with 3-5% (?) aphanitic pyrite. Adjacent to this slip is a 2-3 cm wide, quartz + albite vein with trace spotty pyrite on sericitic fracturing within vein. 	3485 3486 3487 3488 3489 3490 2401	464.00 464.50 465.00 466.00 467.00 468.00	464.50 465.00 466.00 467.00 468.00 469.00	0.50 0.50 1.00 1.00 1.00 1.00	1	3-5 Tr.	5-7 2-3 1-3 1-3	0.01 0.02 0.03 0.02 0.01 0.02	
		470.20 - 470.50 Two quartz + albite + chlorite veins up to 3 cm wide, @ 20° tca. Moderate internal fracturing, pseudo-brecciated by irregular chlorite + sericite suturing. Barren.	3491 3492 3493 3494 3495	470.00 470.60 471.50 472.00	470.00 470.60 471.50 472.00 473.00	0.60 0.90 0.50 1.00	Tr.	2-3 Tr. Tr.	2-3 1-3 1-3 1-3	0.02 0.01 0.02 0.03 0.01	
		473.20 Fault slip @ 55° tca. Sericite + quartz + albite. Tight sharp sericite slip with a 1 cm wide, fractured quartz + albite vein.	3496 3497 3498 3499 3500 3501 3502 3503 3504 3505	473.00 473.50 474.00 475.00 476.00 476.00 477.00 478.00 479.00 480.00 481.00	473.50 474.00 475.00 475.00 476.00 477.00 478.00 479.00 480.00 481.00 482.00	0.50 0.50 1.00 1.00 1.00 1.00 1.00 1.00	Tr.	Tr. Tr. Tr. Tr. Tr. Tr. Tr. Tr.	2-3 1-3 Tr. Tr. Tr. Tr. Tr. Tr. Tr. Tr. 1-3	0.02 NIL 0.02 0.01 0.01 0.01 0.01 0.05 0.01 0.01	
		482.40 - 483.15 Series of quartz + albite ± chlorite veins with minor angular wall rock inclusions. Veins are quite irregular, 0.5-2 cm wide and contain trace spotty pyrite ± chalcopyrite.	3506 3507 3508 3509 3510	482.00 482.60 483.20 484.00 484.50	482.60 483.20 484.00 484.50 485.10	0.60 0.60 0.80 0.50 0.60	Tr. Tr. Tr.	1 2-3 Tr. 3	1-3 1-3 Tr. 3-5 5-7 Cpy.	0.01 NIL 0.02 NIL	
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INTERVAL	DESCRIPTION				SAN	IPLE			ASSAYS	
FROM TO		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
FROM TO	 485.00 - 542.00 Graywackes are somewhat bleached to a light green colour, are moderately sericitic and weakly to non-deformed. Mudstone clasts are yellow-green and sericitic. Some volcanics are notably fuchsitic and elongated while harder clasts (ie. quartz, jasper, etc.) are untouched. 513.45 2 cm wide, quartz + albite + pyrite vein @ 45° tca. Milk-white albite vein with a strong internal fracturing or cleavage. This fracturing is infilled by a dark grey quartz which in turn carries trace-1% fine grained pyrite. 514.30 Fault @ 20° tca. Chlorite + sericite ± calcite ± molybdenite. 2-3 mm wide, tight strong slip with moderate 	No. 3511 3512 3513 3514 3515 3516 3517 3518 3519 3520 3521 3522 3523	From 485.10 486.00 487.00 488.00 509.00 510.00 510.50 511.00 513.00 513.60 514.20 514.80	To 486.00 487.00 488.00 510.00 510.00 511.00 511.00 513.00 513.60 514.20 514.80 515.50	Length %Rec 0.90 1.00 1.00 1.00 0.50 0.50 1.00 1.00 0.60 0.60 0.60 0.70	%Py Tr. Tr. Tr.	%QV Tr. Tr. Tr. 3-5	%Ser 1-3 Tr. Tr. Tr. 3-5 3-5 3-5 3-5 3-5 3-5 3-5 3-5	Au, g/t 0.01 0.02 0.01 0.03 0.02 0.01 NIL NIL 0.01 0.01 0.01	Au,Check
	 gouge. Slip face has a blue-grey tinge and may be smeared with molybdenite. 514.30 - 514.80 Graywacke is moderately well foliated and contains 5% irregular quartz + chlorite veins and pods which carry trace spotty pyrite. 	3524 3525 3526 3527 3528 3529 3530 3531	513.00 515.50 516.00 533.00 534.00 535.00 535.50 536.00 537.00	513.50 516.00 517.00 534.00 535.00 535.50 536.00 537.00 537.50	0.50 1.00 1.00 0.50 0.50 1.00 0.50	Tr.	Tr.	3-5 3-5 3-5 3-5 3-5 3-5 3-5 3-5 3-5	0.01 0.01 0.08 0.02 0.02 0.01 0.15 0.26	
	 537.90 Fault slip @ 40° tca. Sericite + quartz ± molybdenite + pyrite. 2 mm wide, tight sharp slip with smeared blue-grey molybdenite (?), quartz and 1-2% pyrite. 543.50 - 569.80 Graywackes take on a patchy dark grey-blue ting (gradational) and contain notable amounts of pyrite (trace-1%). Zone may be weakly silicified and pyritized but only weakly deformed. Pyrite occurs as: i) fine, patchy disseminated pyrite in matrix. ii) scattered pyritic altered clasts. iii) narrow (1-3 mm) pyritic seams and stringers. 	3532 3533 3534 3535 3536 3537 3538 3539 3540 3541 3542 3543 3544	537.50 538.00 539.00 540.00 541.00 542.00 543.00 543.50 544.00 545.00 546.00 546.00 546.00	538.00 539.00 540.00 541.00 542.00 543.00 543.00 543.50 544.00 545.00 546.00 546.00 546.00 548.00 548.50	0.50 1.00 1.00 1.00 1.00 0.50 0.50 1.00 1.0	Tr. Tr. Tr. Tr. Tr. Tr.	Tr. Tr. Tr.	3-5 3-5 3-5 3-5 2-3 2-3 2-3 2-3 2-3 3-5 3-5 3-5 3-5	0.03 0.02 0.02 0.02 0.04 0.06 0.05 0.05 0.15 0.01 0.02	

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INTE	RVAL		DESCRIPTION				S	AMPLE			ASSAYS	
FROM	то			No.	From	То	Length %Re	c %Py	%QV	%Ser	Au, g/t	Au,Check
-		548.60 - 548.65	Quartz + chlorite + pyrite vein @ 65° tca. Somewhat irregular and foliated, dark grey-blue to white quartz vein with 1% fine pyrite and irregular internal wispy sericitic	3545	548.50	549.00	0.50	Tr.	2	3-5	0.02	
		549.10 - 549.20	Quartz + chlorite + sericite + pyrite vein @ 60° tca. Graywackes are well foliated to weakly schistose from 549.00 - 549.50. Vein is laminated to sheared, dark blue- grey to white quartz with strong sericite slips. Vein carries 1-2% very fine grained pyrite within quartz and on sericitic parting.	3546	549.00	549.50	0.50	1-2	3	5-10	0.76	
		549.20 - 552.00	Graywackes are weakly foliated and contain trace-1% pyrite as fine disseminations, pyritic clasts and pyrite + chlorite \pm sericite stringers up to 3 mm wide. Overall appears to be a weak to moderate "crack and seal" type deformation with patchy stress of blue gray slikeling in the second seal.	3547 3548	549.50 550.30	550.30 551.10	0.80 0.80	1-2 Tr1	1 3	5-10 5-7	0.69 0.86	
		551.00	Fault slip @ 60° tca. 2 mm wide, chloritic slip with weak mud gouge and 3 cm wide, white to grey atz + ny yein	3549	551.10	551.60	0.50	1-2	Tr.	5-7	1.00	
		551.85 - 552.00	Blue-grey silicified graywacke with 1-2% finely disseminated pyrite. Primary graywacke texture still evident.	3550	551.60	552.10	0.50	1-2	3	5-7	0.93	
		552.00 - 554.85	Bleached sericitized tuff(?) graywacke(?). Light buff- brown, massive, quite soft. Comprised of 3% fine subhedral crystal shards and laths up to 1-2 mm wide, light grey, translucent prismatic quartz(?) (hard), in an aphanitic sericitic groundmass. Also contains 1-2% irregular white albite clots and stringers. Upper contact is a sharp, tight slip @ 40° tca. Lower contact also a sharp, tight slip @ 60° tca. At contacts pyrite \pm quartz mineralization penetrates this unit up to 1-2 cm otherwise unit is virtually non-mineralized.	3551 3552	552.10 553.00	553.00 554.00	0.90 1.00	Tr. Tr.		5-10 5-10	0.11 0.02	
		554.85 - 569.80 557.50 - 557.75	Intercalated graywacke, pebbly graywacke and conglomerate horizons with sharp to gradational contacts. Possible bedding @ 45° tca. Units are moderately to weakly foliated, moderately sericitic and contain trace pyrite as minor patchy disseminations pyritic clasts and associated with narrow blue-grey quartz veins or zones of silicification (≤ 3 cm). Graywacke displays a weak "crack and seal" type	3553 3554 3555 3556 3557 3558	554.00 554.90 555.50 556.00 556.80 557.50	554.90 555.50 556.00 556.80 557.50 558.00	0.90 0.60 0.50 0.80 0.70	Tr. Tr. Tr. Tr. Tr.	Tr. Tr. Tr. Tr.	5-10 3-5 3-5 3-5 5-7 5-7	0.01 0.28 0.05 0.02 0.01	
			fracturing with irregular faint blue-grey quartz + pyrite infilling (1-2 mm wide).	3559 3560	558.00 558.70	558.70 559.20	0.70 0.50	Nil-Tr Tr.	Tr.	5-7 5-7	0.02 0.01	

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INTE	RVAL	DESCRIPTION				SAM	NPLE			AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		559.90 Fault slip @ 55° tca. Chlorite + quartz ± pyrite. Sha tight chlorite slip with a 0.5 cm quartz vein and 1% fi	p 3561 e 3562	559.20 560.00	560.00 561.00	0.80 1.00	Tr1 Tr.	Tr. Tr.	5-7 3-5	0.02	
		 grained pyrite on sericitic foliation. 561.30 Quartz + pyrite stringers. Narrow, 1-3 mm wide, irregul blue-grey quartz stringers with 1-2% very fine grain pyrite infilling weak fracturing. 	r 3563 d 3564 3565	561.00 561.50 562.00	561.50 562.00 562.50	0.50 0.50 0.50	Tr. Tr. Tr	Tr. Tr	3-5 3-5 3-5	0.07 0.03	
		563.35 - 563.60 Unit displays a weak "crack and seal" fracturing with blu grey quartz + pyrite infilling. Fractures are hairline to mm wide	3566 - 3567 1	562.50 563.30	563.30 563.80	0.80 0.50	Tr. Tr1	Tr. 1	3-5 3-5 3-5	0.02 0.04 2.36	2.26
		563.60 Quartz + pyrite vein @ 70° tca. 2 cm wide, dark blu grey to white quartz vein with 1-2% very fine grained blebby pyrite.	- 3568 - 3569 - 3570 - 3571 - 3572 - 3573 	563.80 564.40 565.00 566.00 567.00 568.00	564.40 565.00 566.00 567.00 568.00 569.00	0.60 0.60 1.00 1.00 1.00 1.00	Tr. Tr. Nil-Tr Nil-Tr Tr. Nil-Tr	Tr. Tr. 1-2 Tr. Tr.	3-5 3-5 3-5 3-5 3-5 3-5	0.07 0.06 0.01 0.03 0.04 0.03	
		569.80 Blue-grey tinge through the mineralized zone gives w rapidly to a bleached sericitic graywacke with little to a mineralization.	y 3574 y 3575 o 3576 3577	569.00 569.80 570.50 571.00	569.80 570.50 571.00 572.00	0.80 0.70 0.50 1.00'	Nil-Tr Nil Tr. Nil-Tr	Tr. Tr. 2	3-5 5-10 5-10 5-10	0.01 0.01 0.01 NU	
		569.80 - 575.30 Sericitic and pebbly graywacke. Massive to weak foliated, light grey-green to yellow graywacke with up 3% scattered pebbles and mudstone chips. Ma fragments are pervasively sericitized and groundmass weakly to moderately sericitic. Unit contains 1-2% mil white irregular quartz + albite veins, pods and stringe and trace, patchy disseminated pyrite.	y 3578 o 3579 y 3580 s - s	572.00 573.00 574.00	573.00 574.00 575.00	1.00 1.00 1.00	Tr.	Tr. Tr.	5-10 5-7 5-7	0.01 0.01 NIL	
		575.30 - 591.70 Massive, graywacke, weakly to moderately sericitic. 1-2 scattered mudstone chips.	6 3581 3582	575.00 587.00	576.00 587.90	1.00			3-5	0.01	
		587.90 - 589.80 1-2 cm wide, white quartz ± albite vein @ 5° tca. Min blue-grey quartz patches with minor spotty pyrite chalcopyrite.	or 3583 E 3584 3585 3586 3586 3587	587.90 588.80 589.80 590.50 591.00	588.80 589.80 590.50 591.00 591.70	0.90 1.00 0.70 0.50 0.70	Tr. Tr.	2 2	3-5 3-5 3-5 3-5 3-5 3-5	0.01 0.02 0.02 0.01 0.05 0.13	
591.70	597.00	CONGLOMERATE Massive to moderately well foliated @ 40-45° tca, moderately sericit Matrix supported, polymictic pebble conglomerate. Softer clasts (trachy mudstone, mafic volcanics) are notably sericitic to fuchsitic and frequent	c. 3588 c, 3589 y 3590	591.70 592.60 593.10	592.60 593.10 594.00	0.90 0.50 0.90	Tr. Tr.	2-3 Tr. 1-2	5-7 3-5 3-5	0.02 0.11 0.41	

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INTE	RVAL	DESCRIPTION				SAN	IPLE				ASSAYS	
FROM	TO		No.	From	To	Length %Rec	%Py	%QV	%Ser		Au, g/t	Au,Check
		stretched, while quartz, granitoids etc. remain unaltered and well rounded. Matrix is a weakly sericitic graywacke. Unit contains 1-2% irregular milk- white quartz + albite veining with minor spotty pyrite \pm chalcopyrite \pm galena. Upper and lower contacts are sharp but irregular.	3591 3592 3593	594.00 595.00 596.00	595.00 596.00 597.00	1.00 1.00 1.00	Tr.	1-2	3-5 5-7 5-7	Gal.	0.15 0.09 0.03	
597.00	597.90	 SILTSTONE/MUDSTONE Massive, very fine grained to aphanitic, yellow-green siltstone. Soft, pervasively sericitic, non-descript. 597.55 - 597.90 Fault @ 25° tca. Chlorite + sericite + quartz ± pyrite. Strong, broken fault zone with strong mud gouge. 597.70 5-7 cm wide, white to blue-grey, sheared quartz vein. Dark areas appear to be mixed chlorite + sericite and very fine grained pyrite. 	3594 3595	597.00 597.50	597.50 598.00	0.50 0.50	Tr.	3-5	10-20 5-10		NIL 0.03	
597.90	6 48.10	GRAYWACKE Massive, chloritic, medium green, fine grained graywacke. Weak pervasive sericite alteration. In places, primary pyrite beds from 0.5-2 mm wide, are evident @ 50° tca.				ı						
		 597.90 - 608.00 Unit is stockworked with 2-4% quartz + albite ± chlorite vein, stringers and pods which frequently carry minor spotty pyrite pseudomorphing galena(?) often in vein fractures and cleavages. 606.70 - 607.50 Quartz + albite + sericite ± pyrite vein. Irregular white (quartz ± albite) to dark grey (quartz + chlorite + provide + provide	3596 3597 3598 3599 3600 3601 3602 3603 3604 3605 3606	598.00 599.00 600.00 601.00 601.80 602.50 603.50 604.00 605.00 606.00 606.70	599.00 600.00 601.00 601.80 602.50 603.50 604.00 605.00 606.00 606.70 607.60	1.00 1.00 0.80 0.70 1.00 0.50 1.00 1.00 0.70 0.90	Tr. 2-3 Tr. Tr. Tr. Tr1	2 2-3 1-2 2-3 1-2 1 2-3 2-3 1-2 5-10	3-5 3-5 3-5 3-5 3-5 3-5 3-5 3-5 3-5 10-15		0.01 NIL 0.01 NIL 0.04 0.01 0.01 0.01 NIL 0.01 0.11	
		sericite + pyrite) veining. Strong internal sericite + chlorite suturing to brecciation with 1-2% very fine grained pyrite. Moderately strong sericite slips @ 30° tca. 607.30 - 607.40 A 3-4 cm wide, quartz breccia vein with white included quartz fragments in a dark grey, quartz + chlorite groundmass. Vein carries trace-1% disseminated pyrite.	3607 3608 3609 3610 3611	607.60 608.50 609.50 610.00 611.00	608.50 609.50 610.00 611.00 612.00	0.90 1.00 0.50 1.00 1.00	2-3 2-3	Tr. Tr. 1 3 Tr.	3-5 3-5 3-5 3-5 3-5	- -	NIL NIL 0.01 0.01	

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INTERVAL DESCRIPTION SAMPLE	ASSAYS
FROM TO No. From To Length %Rec %Py %QV %S	%Ser Au, g/t Au, Check
648.10 E. O. H. Casing left in hole. Control Contr Contr Contro	3.5 NIL 3.5 0.01 3.5 0.01 3.5 0.01 3.5 0.01 3.5 0.01 3.5 0.01 3.5 0.01 3.5 0.01 3.5 0.01 3.5 NIL 3.5 NIL 5.7 0.01 5.7 0.01 3.5 NIL

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PROPERTY TOWNSHIP	Amalgamated Kirkland Teck	DATE LOGGED LOGGED BY	July 21, 1992 - Au Mark Masson	gust 6, 1992	EASTING NORTHING	8148.2 9931.5	Depth	Method	Azimuth	Dip
CLAIM No. STARTED COMPLETED	L 491663, L 491651 July 20, 1992 August 5, 1992	DRILLED BY CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Heath & Sherwood Kirkland Lake Warehouse B.M.C.I. Sperry Sun		LENGTH UNITS CORE SIZE	Northland Technical 814.1 metres NQ	Note:	See table at for downhol	end of sumn surveys	ary log
PURPOSE COMMENTS	To test "102"/"103" struc No significant intersectio "102" structure @ 642.24 "103" structure @ 730.00 "104" structure @ 774.65	tures. ons. 0 - 647.00, 4.80 m. 0 - 737.85, 7.85 m. 5 - 800.00, 25.35 m.	SIGNED BY	(W. Benham)						

	SUM	MARY LOG		ASSAY SUMM	ASSAY SUMMARY				
INTERVAL From To	DESCRIPTION	INTERVAL From To	DESCRIPTION	INTERVAL LENGTH From To in metres	AVERAGE Au g/t				
0.0 3.75 3.75 156.20 156.20 182.60 182.60 194.30 194.30 200.90 200.90 204.40 204.40 209.50 209.50 267.30 267.30 305.90 305.90 428.00	OVERBURDEN BLOCK TUFF/CONGLOMERATE 62.00 - 62.15 Fault @ 15° tca. 101.40 - 101.70 Fault @ 10° tca. 121.20 Fault @ 40° tca. 107.00 - 156.20 Facie change, tuff to conglomerate. ASH/LAPILLI TUFF LAPILLI TUFF SYENITE PORPHYRY CONGLOMERATE Foliated @ 10-30° tca. ASH TUFF 230.70 - 233.40 Fault @ 0-10° tca. LAPILLI TUFF 270.90 - 271.60 Fault @ 10° tca. 305.90 Fault @ 60° tca. LAPILLI TUFF Moderately to strongly magnetic. Bedding @ 20° tca. 311.10 - 319.45 1%, 0.5-1.0 cm wide, quartz + albite + pyrite veins @ 40-70° tca.	428.00 460.50 460.50 497.00 497.00 521.00 521.00 532.65 532.65 553.75	 361.50 - 361.70 Fault @ 15° tca. 374.20 - 387.50 Sericitic, weakly to moderate deformed. 387.50 - 396.50 Strongly deformed and sericitic 388.10 Fault @ 20° tca. 390.70 Fault @ 50° tca. 391.15 - 392.00 Quartz + sericite + pyrite sheat zone @ 25° tca. 393.50 - 396.50 Pyritic zone, 2-5% pyrite. 394.20 Fault @ 25° tca. ASH/LAPILLI TUFF LAPILLI TUFF ASH/LAPILLI TUFF S10.00 Fault @ 20° tca. CONGLOMERATE/GRAYWACKE/SILTSTONE SILTSTONE/GRAYWACKE S33.00 - 539.00 Quartz + quartz brecc stockwork (1-3%), trace pyrite. 546.80 - 547.40 Fault zone @ 30° tca. 547.40 - 553.00 Moderately deformed an sericitic, 2-4% quartz veins, trac pyrite. 	y 642.20 647.00 4.80	0.10				

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PROPERTY TOWNSHIP CLAIM No.	Amalgamated Kirkland Teck L 491663, L 491651	DATE LOGGED LOGGED BY DRULED BY	July 21, 1992 - August Mark Masson Heath & Shenwood	6, 1992	EASTING NORTHING	8148.2 9931.5	Depth	Method	Azimuth	Dip
STARTED COMPLETED	July 20, 1992 August 5, 1992	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake Wareho B.M.C.I. Sperry Sun	use	LENGTH UNITS CORE SIZE	Northland Technical 814.1 metres NQ	Note:	See table at for downhole	end of sumn surveys	ary log
PURPOSE COMMENTS	To test "102"/"103" struct No significant intersectio "102" structure @ 642.20 "103" structure @ 730.00 "104" structure @ 774.65	tures. ons. - 647.00, 4.80 m. - 737.85, 7.85 m. - 800.00, 25.35 m.	SIGNED BY	(W. Benham)						

	SUM	MARY LOG		ASSAY SUMMARY				
INTERVAL From To	DESCRIPTION	INTERVAL From To	DESCRIPTION	INTERVAL From To	LENGTH AVERAGE in metres Au g/t			
553.75 559.70 559.70 564.00 564.00 681.00 681.00 687.40 687.40 715.00 715.00 733.40	 GRAYWACKE/SILTSTONE GRAYWACKE GRAYWACKE 586.15 - 586.45 Diabase dyke @ 15° tca. 609.40 - 614.10 Trace, 1-3 mm quartz + chlorite veins, trace pyrite. 614.10 - 614.40 Quartz + sericite shear @ 30° tca, trace pyrite. 614.40 - 626.00 Sericitic. 640.50 - 648.00 1-2% quartz + chlorite veins @ 0° tca, trace pyrite and chalcopyrite. 673.20 - 680.10 Moderately foliated and sericitic, 1-4% quartz veins @ 0-15° tca. 680.10 - 680.40 Sericitic shear @ 30° tca. GRAYWACKE/CONGLOMERATE/SILTSTONE/LAPILLI TUFF LAPILLI TUFF/GRAYWACKE/MUDSTONE 711.75 - 712.10 Fault @ 40° tca. ASH TUFF 730.00 - 733.40 Weakly to moderately sericitic. 	733.40 737.85 737.85 775.25 775.25 814.10 814.10	GRAYWACKE/CONGLOMERATE 733.40 - 733.90 Fault @ 30-40° tca. 733.90 - 737.85 Moderately foliated @ 30-45° tca, 2-3% white quartz veins. ASH/LAPILLI TUFF/CONGLOMERATE 774.65 - 775.25 Shear zone @ 65° tca. GRAYWACKE 775.25 - 776.30 Sheared and fractured. 2-3% white quartz veins, trace pyrite. 776.30 - 800.00 1-3% white quartz veins and 1% blue quartz + chlorite veins @ 30° tca, trace pyrite, weakly to. moderately sericitic. E O H					

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PROPERTY TOWNSHIP CLAIM No.	Amaigamated Kirkland Teck L 491663, L 491651	DATE LOGGED LOGGED BY DRILLED BY	July 21, 1992 - Augus Mark Masson Heath & Sherwood	t 6, 1992	EASTING NORTHING	8148.2 9931.5	Depth	Method	Azimuth	Dip
STARTED COMPLETED	July 20, 1992 August 5, 1992	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake Wareh B.M.C.I. Sperry Sun	ouse	LENGTH UNITS CORE SIZE	Northland Technical 814.1 metres NO	Note:	See table bel surveys	ow for downł	ole
PURPOSE COMMENTS	To test "102"/"103" struct No significant intersectio "102" structure @ 642.20 "103" structure @ 730.00 "104" structure @ 774.65	ures. ns. - 647.00, 4.80 m. - 737.85, 7.85 m. - 800.00, 25.35 m.	SIGNED BY	(W. Benham)						

					SUM	MARY LOG			ASSAY SUMMARY					
INTERVAL From To			DESCRII	PTION		INTERVAL From To	- <u></u>	DESCRI	INTERVAL LENGTH AVERAC From To in metres Au g/t					
												<u> </u>		
		Depth	Method	Azimuth	Dip		Depth	Method	Azimuth	Dip				
		Collar	Compass	341	75		470.0	Acid		68	Note: Assume	l gradual eventy distributed		
		44.0	Sperry Sun	337(?)	75		529.0	Sperry Sun	319	66	deviatio	o 324.6 m versus		
		120.0	Sperry Sun	338(?)	76		590.0	Sperry Sun	319	64	10 100	1 200.7 III (O 324.)) m.	
		196.0	Sperry Sun	338(?)	76		617.0	Sperry Sun	317	60				
		266.7	Sperry Sun	337(?)	76		675.0	Sperry Sun	315	58.5				
		324.6	Sperry Sun	319(?)	70.5		739.0	Sperry Sun	315	44.5				
		334.0	Sperry Sun	317	69.5		785.0	Sperry Sun	317	35				
		373.0	Sperry Sun	316	69									
		437.4	Sperry Sun	317	68			,						
		450.0	Sperry Sun	317	68									
	L	459.0	Acid		68						-			

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INTE	RVAL	DESCRIPTION			ASSAVS					
FROM	ТО		No.	From	To	Length %Rec	%Py %OV	%Sar	A:: - +	SAIS An Obash
INTE FROM 0.00 3.75	TO 3.75 156.20	DESCRIPTION OVERBURDEN Sand-boulder till. BLOCK TUFF/CONGLOMERATE Massive, chloritic ± hematitic, dark green-red lapilli-block tuff comprised of 3-10%, angular to subrounded, red (syenitic) clasts from 1-10 cm, in a fine-grained, dark green chloritic ash matrix. Clasts are dark red, fine grained to porphyritic syenite-trachyte. Pervasive strong magnetics. In part intercalated with ash/apilli tuff horizons of equivalent composition. Unit contains 1-2% ubiquitous, white quartz ± albite veins and stringers from 0.1-4 cm wide @ 65-90° tca. Occasional vein has trace, spotty chalcopyrite but veins tend to be non-mineralized. Lower contact is gradational and somewhat subjective. 3.75 - 20.00 Well fractured and quite blocky. 9.50 - 16.10 Block tuff is dirty yellow-green (sericitic) and contains 3- 5% irregular quartz + chlorite seams and fractures up to 2 mm wide	No.	From	То	SAN Length %Rec	APLE %Py %QV	%Ser	AS Au, g/t	SAYS Au,Check
		 3 mm wide. 14.50 A tight, blocky fault slip @ 10-15° tca. Non-mineralized. 54.70 - 56.00 Fault @ 15° tca. Chlorite + quartz + calcite. Tight weak fault slip with 2 cm wide quartz + calcite vein with trace, spotty chalcopyrite + galena. Oscillates in and out of core down to 56.00 m. 62.00 - 62.15 Fault @ 15° tca. Chlorite + calcite. 2-3 mm wide, tight, strong chloritic fault with moderate gouge developed. Barren. 71.70 - 72.30 Fault @ 10° tca. Chlorite + quartz + calcite. Rubbly section with a tight (1-2 mm) chloritic slip. 101.40 - 101.70 Fault @ 10° tca. Tight, strong chloritic slip with weak gouge and minor quartz ± calcite stringers. 107.00 - 156.20 No contacts, the block/lapilli tuff which is predominantly monolithic, takes on a conglomeratic appearance with a notable increase in rounded foreign clasts including jasper + mafic volcanics. However, unit maintains its dark chloritic ash matrix, coarse syenite + trachyte clasts and strong magnetic signature. Facies change. 108.80 - 109.90 Fault @ 5-10° tca. Chlorite + quartz + calcite. Tight (1-2 mm) sharp chloritic slip which is somewhat irregular and wavy. 2-3 cm wide fractured to brecciated quartz + calcite vein on slip wall. 								

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INTE	RVAL	DESCRIPTION				SAN	IPLE			AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py 9	%QV	%Ser	Au, g/t	Au,Check
156.20	182.60	 Fault @ 20° tca. Broken, rubbly, chloritic fault with moderate gouge developed. Appears to be # 2 cm wide. Fault @ 40° tca. Chlorite + sericite. 0.5 cm wide, crushed zone with moderate to strong fault gouge. Dry, barren. ASH/LAPILLI TUFF Massive, non-bedded, dark green to brown, chloritic, interdigitated ash and lapilli tuff and minor sections of blocky tuff. Comprised of 1-10% subrounded, heterolithic lapilli clasts from 1-2 mm to 3 cm, in a dark fine grained ash matrix. Poorly sorted, moderate to strong pervasive magnetics. Very similar to block tuff but fine grained. Lower contact is gradational over 15 cm. 									
182.60	194.30	 163.40 - 182.40 Series of tight, sharp irregular, wavy chlorite slips @ 0-10° tca, with weak to moderate gouge and patchy quartz + calcite. Rubbly, fractured zone, barren. 178.50 - 182.00 Very strongly fractured zone. LAPILLI/BLOCK TUFF Massive, dark green to brown, chloritic + hematitic, lapilli block tuff. Predominantly monolithic with 2-7% dark red, fine grained to porphyritic syenite + trachyte clasts from 0.5-10 cm in a fine grained ash matrix. Clasts are typically dusted with a pervasive hematitic coating. Strongly magnetic. 				ſ					
•		187.00 - 194.30 Somewhat rubbly, blocky zone due to abundant sharp chloritic slips and fractures @ 5-15° tca.	3630 3631 3632	192.00 193.00 194.00	193.00 194.00 194.50	1.00 1.00 0.50		Tr. 2	1-2 2-3	0.01 0.01 NIL	
194.30	200.90	 LAPILLI TUFF Moderately well deformed, foliated, hematitic lapilli tuff comprised of 5-15% angular heterolithic lapilli clasts, from 0.02-2 cm, in a fine grained ash matrix. Clasts are 65% dark red syenite + trachyte, 25% light buff clasts and 15% dark green volcanics. Matrix is moderately well deformed, foliated to sheared @ 5-20° tca and contains 5% irregular wispy sericite and 1% narrow quartz + chlorite veining and fracture fillings. Lower contact of unit is sharp but irregular with strong sericitic alteration of tuff @ 75° tca. 196.90 Fault @ 20° tca. Sericite ± chlorite. 0.5 cm wide, tight strong sericite slip. 	3633 3634 3635 3636 3637	194.50 195.00 196.00 197.00 198.00	195.00 196.00 197.00 198.00 199.00	0.50 1.00 1.00 1.00 1.00 1.00		Tr. 1-2 Tr.	2-3 3-4 3-5 5-7 5-7	NIL 0.01 NIL NIL 0.01	

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INTE	RVAL	DESCRIPTION	T			SAI	MPLE			* <u></u>	AS	SAYS
FROM	то		No.	From	To	Length %Rec	%Py	%QV	%Ser		Au. g/t	Au Check
200.90	204.40	 199.35 Fault slip @ 45° tca. 0.5 cm wide, quartz + calcite vein bounded by sharp chloritic slips. SYENITE PORPHYRY Massive, hematitic dark red to purple. Comprised of 5% subhedral 	3638 3639 3640	199.00 200.00 200.90	200.00 200.90 201.50	1.00 0.90 0.60		Tr. Tr. Tr.	5-7 5-10 Tr.	Hem.	0.01 NIL 0.01	Aujuiton
		phenocrysts, up to 0.5 cm, which are lath shaped to round, buff-white to grey to red where dusted with hematite (feldspar or leucite?). Matrix is dark red, aphanitic and pervasively hematized. Non-magnetic. Lower contact is a chlorite + sericite shear @ 25° tca.	3641 3642 3643 3644	201.50 202.50 203.00 204.00	202.50 203.00 204.00 204.50	1.00 0.50 1.00 0.50		2 1-2 1-2 1-2	Tr. Tr. Tr. 2	Hem.	0.01 0.01 0.01 NIL	
204.40	209.50	 CONGLOMERATE Moderately well foliated to weakly schistose @ 10-30° tca, chloritic + sericitic, polymictic pebble conglomerate. Medium green, comprised of 10% rounded, polymictic clasts, up to 5 cm, in a foliated sericitic graywacke matrix. Unit contains numerous tight sericitic slips throughout. Lower contact is a sharp sericitic fault slip @ 25° tca. 206.50 - 207.50 Fault slip @ 0-5° tca. Tight, strong chloritic slip subparallel tca. 	3645 3646 3647 3648 3649 3650 3651	204.50 205.00 206.00 206.50 207.50 208.00 209.00	205.00 206.00 206.50 207.50 208.00 209.00 209.50	0.50 1.00 0.50 1.00 0.50 1.00 0.50		1-2 1-2 1-2 Tr. Tr.	5-7 5-7 5-10 5-10 5-10 5-10 5-10		0.01 NIL 0.01 0.01 0.01 0.01 0.01	
209.50	210.40	ASH/CRYSTAL TUFF Massive, fine grained red-purple ash tuff. Pervasively hematized. Comprised of 5-10% very fine grained crystal shards(?) and lithic fragments ($\leq 1 \cdot 2$ mm) in an aphanitic matrix. Non-magnetic. Lower contact very sharp @ 20° tca.	3652 3653	209.50 210.00	210.00 210.40	0.50 0.40		Tr. Tr.	Tr. Tr.	Hem. Hem.	0.01 0.05	
210.40	267.30	ASH TUFF Massive, fine grained, light to dark green, chloritic \pm hematitic, ash tuff with <1% scattered lapilli clasts. Quite soft, chloritic, non-magnetic, non- descript. Comprised of very fine grained (1 mm) lithics in an aphanitic groundmass. In places unit takes on a weak purple-brown colour. Weakly hematitic with patchy strong magnetics. Lower contact is quite sharp, intact @ 20° tca.										
		210.40 - 210.80 Contact zone is sericitic and fractured with 10% barren grey-white quartz ± chlorite velning and stockworking.	3654 3655 3656	210.40 210.90 211.50	210.90 211.50 212.00	0.50 0.60 0.50		10	5-10 Tr.		0.01 0.01 0.01	:

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INTE	RVAL	DESCRIPTION				SAN	(PLE	······································	AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py %QV	%Ser	Au, g/t	Au,Check
267.30	305.90	 230.70 - 233.40 Strong cross-fault @ 0-10° tca. 0.5-1 cm wide chloritic fault gouge sub-parallel tca. Open, vuggy fault. Strong, slickenslides show multiple movements in at least two directions, predominantly horizontal. LAPILLI TUFF 					:			
		Massive to weakly foliated, hematitic \pm chloritic \pm sericitic, dark to light green to purple, heterolithic lapilli tuff comprised of 1-5% angular to subrounded clasts from 0.02-3 cm (avg. 1 cm) in a very fine grained chloritic to hematitic ash matrix. Colour variations are generally gradational. Unit is predominantly hematitic with patchy moderate magnetics.								
		 270.90 - 271.60 Fault @ 10° tca. Chlorite + quartz + albite. Fairly strong, 1 cm wide fault with moderate gouge development. Minor, barren quartz ± albite veinlets and pods. Lapilli tuff adjacent to fault is somewhat bleached, fractured and sericitized up to 0.5 m from fault. 								
		2/7.50 - 2/8.10 Fault slip @ 15' tca. Chlorite + sericite + quartz + albite. Tight, chloritic slip with 10-15% barren quartz stringers in wall rock.)				
		sharp chlorite + sericite slip with 1 cm wide, quartz vein. 283.10 - 283.60 Fault @ 15° tca. Chlorite + sericite + quartz + albite, 2								
		cm wide, white-pink quartz + albite vein bounded by sharp tight fault slips. Lapilli tuff is moderately sericitic adjacent to fault.								
		285.00 - 287.60 Unit carries 3-5% irregular barren white quartz + albite veins and stringers. Proximal to veins unit is light yellow-green, sericitic.								
		302.20 - 305.00 Fault slip @ 0-15° tca. Chlorite + quartz. Tight, sharp, chloritic slip oscillates down core axis with a 1-3 cm wide, barren quartz + albite vein								
		305.90 Fault @ 60° tca. 1-3 mm wide, strong tight chloritic mud fault. Marks lower contact of unit.								
305.90	428.00	LAPILLI TUFF Massive, light to dark grey-green to red-brown, chloritic \pm hematitic. Variable with 1-7% angular lapilli clasts ranging from 2-3 mm to 5 cm (avg. 1-2 cm) in a very fine grained ash matrix. Clasts consists of 80% light								

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INTERVAL FROM TO		DESCRIPTION	SAMPLE							ASSAYS	
FROM	TO		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		pink-brown fine grained to spotted trachyte, 10% dark green volcanics and 10% light grey-green volcanics. Moderately to strongly magnetic. Lower contact of unit is gradational and subjective.		010.00		1.00					
		311.10 1 cm wide, quartz + albite + pyrite vein @ 70° tca, with 5% semi-massive pyrite.	3658 3659 3660	311.00 311.50 312.00	311.00 311.50 312.00 313.00	0.50 0.50 1.00	Tr.	Tr.	Tr.	0.04 0.01 0.04 NU	
		313.10 1 mm wide, fault slip @ 30° tca with a 0.5-1 cm wide quartz + albite vein which carries trace disseminated pyrite.	3661 3662 3663	313.00 313.50 314.00	313.50 314.00 315.00	0.50 0.50 1.00	Tr. Tr.	1-2 1-2 1-2	Tr. Tr. Tr.	0.02 0.01 0.04	
		315.90 Quartz + albite + pyrite stringer @ 40° tca. 2-3% fine grained pyrite in a 0.5 cm wide, irregular vein.	3664 3665 3666 3667 3668	315.00 315.50 316.00 317.00 318.00	315.50 316.00 317.00 318.00 319.00	0.50 0.50 1.00 1.00 1.00	Tr.			0.01 0.02 0.01 0.01 NII	
		319.45 Quartz + albite + pyrite vein @ 70° tca. 0.5 cm wide, bounded by tight chlorite slips.	3669 3670	319.00 319.50	319.50 320.00	0.50	Tr.	Tr.	Tr.	0.03	
		321.40 - 324.80 Rubbly broken section due to abundant chlorite slips and fractures @ 5-25° tca. Fairly tight, moderately strong chlorite ± quartz albite slips with weak gouge. Non- mineralized.	3671	320.00	321.00	1.00				0.01	
		334.00Series of narrow (1-2 mm) magnetic beds @ 20° tca.341.60Fault @ 55° tca. Chlorite + quartz + albite + calcite. 2 cm wide, barren white-pink quartz + albite + calcite vein bounded by strong, sharp chloritic slips.									
		356.00 - 356.20 Fault @ 20° tca. Chlorite + quartz + albite ± calcite. 4-5 cm wide, white-pink quartz + albite vein with internal chloritic slips and fractures bounded by sharp chloritic slips									
		361.50 - 361.70 Fault slip @ 15° tca. Tight, strong chloritic slip with moderate gouge.									
		363.10 Fault @ 25° tca. Chlorite + quartz + albite. Moderate chloritic gouge on slips bounding a barren, 1 cm wide, fractured quartz + albite vein.	3672 3673	374.00 375.00	375.00 376.00	1.00 1.00	Tr.	Tr. Tr.	Tr. Tr.	NIL 0.02	
		376.30 - 376.40 Fault @ 35° tca. Chlorite + sericite + quartz. 2 cm wide, barren white-pink quartz vein bounded by sharp sericitic slips. Weak sericitization of wall rock.	3674 3675	376.00 377.00	377.00 378.00	1.00 1.00	Tr. Tr.	Tr. 1	1-2 1-3	0.01 NIL	
		374.20 - 387.50 Weakly to moderately deformed and sericitized and contains abundant fault zones. Unit displays a patchy weak to moderately strong sericitization, generally									

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INTE	RVAL	DESCRIPTION				SAN	IPLE			AS	SAYS
FROM	то		No.	From	To	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		increasing proximal to faults. Lapilli tuff carries sporad trace disseminated pyrite. Tuffs are quite variable fro red-brown to grey to green.	ic n								
		378.50 - 378.70 Fault @ 25° tca. Sericite + chlorite + quartz. Weal brecciated shear comprised of fragmented tuff w irregular quartz pods and 10-15% bright orange, se altered feldspar? Walls are sharp, irregular sericite chlorite slips.	y 3676 h 3677 ft 3678 + 3679 3680 3681	378.00 379.00 380.00 381.00 382.00 383.00	379.00 380.00 381.00 382.00 383.00 384.00	1.00 1.00 1.00 1.00 1.00 1.00	Tr. Tr. Tr.	2-3 Tr. Tr. Tr.	2-5 2-3 1-3 1-3 Tr. Tr.	0.01 NIL 0.01 0.02 0.01 0.01	
		384.10 - 384.40 Fault slip @ 10° tca. Sericite + quartz. 0.5 cm wide, tig sericitic slips with minor quartz.	nt 3682 3683 3684 3685	384.00 385.00 386.00 387.00	385.00 386.00 387.00 387.50	1.00 1.00 1.00 0.50	Tr. Tr. Tr.	Tr. 1-2 1-2	1-3 2-5 2-5 2-5	NIL NIL 0.01 NIL	
		387.50 - 396.50 Tuffs are quite strongly, deformed and sericitized w numerous strong faults, quartz + albite veining and tra- patchy pyrite.	h 3686 e,	387.50	388.00	0.50	Tr.	1-2	5-7	NIL	
		 387.70 - 387.80 Broken, rubbly, sericite + chlorite shear @ 10-15° tcs 388.10 Fault @ 20° tca. Sericite + quartz. 2-3 cm wide, fractur quartz bounded by strong sericite + chlorite sli Moderate gouge trace spotty pyrite. 	d 3687 s. 3688	388.00 389.00	389.00 390.00	1.00 1.00	Tr.	2-3 1-2	5-10 5-7	0.01 NIL	
		390.70 Fault @ 50° tca. Strong, tight 0.5 cm wide, chloritic she with moderate gouge.	ar 3 689	390.00	391.00	1.00		Tr.	3-5	0.02	
		391.15 - 392.00 Quartz + sericite ± pyrite shear @ 25° tca. 30-40 fractured, white to grey quartz flooding with hig sheared sericitized lapilli tuff. Contains 1% patchy pyr on sericitic sutures and fractures within vein, and in w rock adjacent to vein.	% 3690 hy 3691 ie 3692 ii	391.00 392.00 393.00	392.00 393.00 393.50	1.00 1.00 0.50	Tr. Tr. Tr.	30 2-3 Tr.	10-15 5-10 3-5	0.04 NIL 0.01	
		393.50 - 396.50 Strongly deformed, sericitized + pyritized zone. Secti carries numerous tight, strong chloritic slips @ 20-30° from 393.5 - 396.0. These slips are frequently smean with pyrite. Zone itself displays a highly irregular, serici alteration and from 393.5 - 395.6 carries 2-5% very fi grained, dark grev disseminated pyrite.	n 3693 a d ic ie	393.50	394.00	0.50	1-2	1-2	5-10	0.04	
		394.20 Strong chloritic fault gouge @ 25° tca.	3694 3695 3696 3697	394.00 394.50 395.00 395.70	394.50 395.00 395.70 396.50	0.50 0.50 0.70 0.80	1-2 1-2 3-5 Tr.	Tr. Tr. Tr. Tr.	10-15 10-15 10-20 5-10	0.06 0.03 0.05 NIL	
		396.50 - 399.00 Lapilli tuff is weakly foliated, dark green to brow chloritic ± hematitic. Patchy strong magnetics.	n, 3698 3699 3700	396.50 397.00 398.00	397.00 398.00 399.00	0.50 1.00 1.00	Tr.	Tr.	3-5 Tr2 Tr.	NIL 0.01 0.01	

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INTERVAL FROM TO		DESCRIPTION	SAMPLE						ASSAYS		
FROM	TO		No.	From	То	Length %Rec	%Py %QV	' %Ser	Au, g/t	Au.Check	
428.00	460.50	 423.50 Fault @ 50° tca. Sericitic + chloritic. 1 cm wide, tight sericitic shear. ASH/LAPILLI TUFF Massive, non-bedded, dark green to green-brown, chloritic, quite variable from ash tuff to ash tuff with 1-2% lapilli clasts to lapilli tuff with 5-7% clasts. Clasts are angular, heterolithic, dark green-black, light brown and light grey-green (avg. 1 cm). Moderate, patchy magnetics. 									
460.50	497.00	 459.90 Fault @ 30° tca. Chlorite + sericite. 0.5 cm wide, tight shear with minor quartz stringer. 459.90 - 460.50 Moderately sericitic and foliated and contains 3% quartz + chlorite veins up to 1 cm wide. LAPILLI TUFF Massive, chloritic + hematitic, dark green to red-brown to purple, heterolithic lapilli tuff comprised of 5-10% angular to subrounded clasts up to 4 cm (avg. 1-2 cm). Predominant clast type (75%) is a red-brown to pink syenite/trachyte very similar to the coarse blocky tuffs. Matrix is a fine grained ash. Strongly magnetic, pervasively hematitic except proximal to foult slips where unit is weakly sericitie. 									
497.00	521.00	 470.30 Fault @ 30° tca. Chlorite + sericite + quartz ± calcite. 3-4 cm wide, white-pink-grey quartz calcite vein with internal chloritic suturing. Non-mineralized. ASH/LAPILLI TUFF Massive, non-bedded, medium green ash tuff to lapilli tuff with 1-5%, scattered angular clasts up to 3 cm (avg. 1 cm). Clasts are predominantly light grey, fine grained to spotted trachyte. Ash component is fine to very fine grained and chloritic. Weak to patchy strong magnetics. Lower contact of unit is gradational from approximately 516 to 521 m. 508.60 Fault slip @ 20° tca. Sericite + quartz ± calcite. Sharp, tight, moderately strong sericite slip with a 1 cm wide, white-buff quartz calcite vein. 509.70 Fault slip @ 20° tca. 2-3 mm wide, strong sericite slip with wate course. 									

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INTE	RVAL	DESCRIPTION	1			SAN	MPLE		· · · · · · · · · · · · · · · · · · ·	AS	SAYS
FROM	то		No.	From	То	%Ser	Au, g/t	Au,Check			
		 510.00 Fault @ 20°tca. Sericite + chlorite ± quartz. Strong slip with moderate chloritic mud gouge developed. 511.25 - 511.60 Fault @ 15° tca. Sericite + chlorite + quartz. 3 cm wide, white-pink quartz vein bounded by strong, tight sericite + chlorite slip planes. 518.80 Fault @ 30° tca. Sericite + chlorite + quartz. Tight, sharp fault slip with a 2 cm wide, barren quartz vein. Tuff is moderately sericitic up to 0.5 m from slip. 									
521.00	532.65	CONGLOMERATE/GRAYWACKE/SILTSTONE Massive, fine grained, chloritic, dark grey-green graywacke to a fine grained conglomerate comprised of 1-10%, rounded polymictic clasts which are finer than usual. ie. clasts range from 1-2 mm to 2 cm, avg 0.5 cm. Unit is in part interdigitated with narrow, aphanitic, dark green siltstone horizons up to 0.5 m wide. Weakly foliated, clast elongation @ 35° tca. Lower contact is sharp, intact but somewhat irregular.	3701 3702	531.00 532.00	532.00 532.70	1.00 0.70				0.01 0.01	
532.65	553.75	SILTSTONE/GRAYWACKE Massive to poorly bedded, chloritic, sericitic dark green aphanitic siltstone intercalated with minor, narrow, ≤ 0.5 m, graywacke horizons. Soft, pristine, non-descript. Lower contact of unit is sharp and regular @ 45° tca.				1					
		533.00 - 533.15 Quartz + sericite ± pyrite vein @ 45° tca. 5-6 cm wide, white to grey quartz vein centred on a tight sericitic slip. Vein displays an internal, sericitic fracturing and contains trace to 1% scattered, spotty pyrite on fractures and in adjacent wall rock.	3703	532.70	533.20	0.50	Tr1	2	2-3	0.01	
		533.20 - 539.00 Siltstone is cut by 1-3% (weak stock- working) white to pink to grey quartz and breccia veins up to 3 cm wide. Breccia veins have wall rock fragments up to 2 cm across. Veins carry weak pyrite mineralization from nil to trace. In places, scattered pyrite clots, up to 0.5 cm, are evident within the siltstones.	3704 3705 3706 3707 3708 3709 3710 3711 3712 3713 3714 3715 3716	533.20 534.00 535.00 536.00 537.00 538.00 539.00 540.00 541.00 542.00 543.00 544.00 544.00	534.00 535.00 536.00 537.00 538.00 539.00 540.00 541.00 542.00 543.00 544.00 545.00 546.00	0.80 1.00 1.00 1.00 1.00 1.00 1.00 1.00	Tr. Tr1 Tr1 Tr. Nil-Tr. Tr.	1 2-3 2-3 1-2 1 Tr. Tr. Tr.	1-3 1-3 2-5 1-3 1-3 1-3 1-3 1-3 1-3 1-3 1-3 1-3 1-3	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01	

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INTE	RVAL	DESCRIPTION				SAN	IPLE			AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		546.80 - 547.40 Fault zone @ 30° tca. Sericite + quartz. Strongly deformed, sheared siltstone and graywacke with abundant sericitic slips. Strong fault gouge at 546.80 and 547.15 m. Nil to trace, spotty pyrite and 3-5% quartz veins, stringers and pods which carry trace sporadic pyrite on internal fracturing.	3717 3718	546.00 546.50	546.50 547.50	0.50 1.00	Tr. Tr.	1-2 3-5	3-5 10-15	0.01 0.01	
		 547.40 - 553.00 Siltstones are moderately deformed, sericitic with numerous, tight sericitic slips and 2-4% irregular white quartz veins, stringers and pods. Trace, pervasive pyrite. 550.80 A 1-3 mm wide, dislocated pyrite seam at contact between siltstone and graywacke horizon @ 15° tca. 	3719 3720 3721 3722 3723 3724 3725	547.50 548.50 549.40 550.00 551.00 552.00 553.00	548.50 549.40 550.00 551.00 552.00 553.00 553.80	1.00 0.90 0.60 1.00 1.00 1.00 0.80	Tr. Tr. Tr1 Tr1 Tr. Tr. Nil-Tr.	1-2 5-10 2-3 3-4 2-3 1 1	5-10 10-15 5-7 5-10 3-5 3-5 3-5	0.01 NIL NIL NIL 0.01 0.01	
553.75	559.70	PEBBLY GRAYWACKE/SILTSTONE Dark grey-green, massive, chloritic, pebbly graywacke with 2-5% scattered fine grained mudstone pebbles up to 1 cm. Irregularly interdigitated with siltstone horizons up to 50 cm wide @ 45° tca. Lower contact is gradational over 30 cm, grading to a light grey-green (bleached appearance) graywacke.	3726 3727 3728	553.80 554.50 555.00	554.50 555.00 556.00	0.70 0.50 1.00		Tr. Tr.	1-3 1-3 1-3	NIL 0.01 0.01	
559.70	681.00	GRAYWACKE Massive, chloritic \pm sericitic, fine grained, light grey-green graywacke with 1% scattered, angular mudstone chips up to 5 cm. Non-bedded, non- descript with 60-70% fine quartz grains and lithics (30-40%) in an aphanitic groundmass. Very clean, bleached appearance, weak pervasive, spotty sericite.									
		 559.70 - 564.00 Finely interfingered with narrow, irregular mudstone beds up to 1 cm wide. Very irregular contacts. 581.95 - 582.00 Fault @ 40° tca. Sericite + quartz + calcite. 4 cm wide, white to grey, fractured quartz + calcite vein bounded by sharp strong sericite slips. 586.15 - 586.45 Diabase dyke @ 15° tca. Very fine grained, massive with very sharp, chilled contacts. Non-magnetic. 									
		609.40 - 614.00 Series of narrow (1-3 mm) quartz + chlorite veins @ 10- 15° tca. These stringers have dark grey-blue alteration halos and carry trace spotty pyrite ± chalcopyrite (approx. one per metre).	3729 3730 3731 3732	609.00 610.00 611.00 612.00	610.00 611.00 612.00 613.00	1.00 1.00 1.00 1.00	Tr. Tr. Tr.	Tr. Tr. Tr.	1-3 1-3 1-3 1-3	0.01 0.01 NIL 0.01	

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INTE	RVAL	DESCRIPTION	SAMPLE							AS	SAYS
FROM	ТО		No.	From	То	Length %Rec	%Py	%Q'	/ %Ser	Au, g/t	Au,Check
		 614.10 - 614.40 Quartz + sericite shear @ 30° tca. Irregular, sharp sericitic slips @ 30° tca with a few narrow (1-3 mm) quartz + chlorite stringers also @ 30° tca. Section contains 10-15% irregular veins and pods of white quartz within a fractured sericitic graywacke matrix. Minor trace pyrite scattered throughout. 614.40 - 626.00 Graywacke displays a weak to moderate, pervasive wispy to spotty sericite in groundmass and as scattered sericitic 	3733 3734 3735 3736	613.00 614.00 614.50 615.10	614.00 614.50 615.10 616.00	1.00 0.50 0.60 0.90	Tr. Tr. Tr. Tr.	Tu 14 3-: 1-:	. 1-3) 10-15 5 5-7 3 3-5	NIL 0.02 0.03 0.03	
		 shears. 616.30 - 616.35 Quartz + sericite vein. Sheared @ 70° tca. Somewhat irregular, 3 cm wide, white quartz vein with minor internal sericitic suturing and tight slip walls. Trace spotty pyrite. 629.80 - 630.50 Mudstone, light to dark green, aphanitic, massive to weakly bedded @ 35° tca. Upper contact sharp and irregular. Lower contact gradational over 10 cm. 	3737 3738 3739	616.00 616.50 617.00	616.50 617.00 618.00	0.50 0.50 1.00	Tr.		5-7 3-5 3-5	0.01 0.03 0.04	
		630.10 Fault @ 30° tca. Sericite + quartz ± albite. Tight, strong sericitic slip with weak mud gouge developed. Infilled with barren, white quartz ± albite veins and stringers.	3740 3741 3742	635.00 636.00 637.00	636.00 637.00 638.00	1.00 1.00 1.00	Tr. Tr. Tr.	N N Ti	1 1-3 1 1-3 2-5	0.02 0.02 0.02	
		638.60 Fault slip @ 20° tca. Chlorite + sericite + quartz. Tight, sharp strong slip plane (1 mm).	3743 3744	638.00 639.00	639.00 639.50	1.00 0.50	Tr. Tr.	2- Ti	3 3-7 1-3	NIL 0.02	
		638.50 - 638.95 Graywacke is moderately sericitic and cut by at least two cross-cutting generations of quartz and quartz + chlorite veins, up to 1 cm wide,@ 0-40° tca. Very minor, trace spotty pyrite.	3745 3746	639.50 640.00	640.00 640.50	0.50 0.50			1-3 1-3	0.06 0.03	
		640.50 - 648.00 Series of irregular, anastomosing, green-white quartz chlorite veins (≤ 2 cm) subparallel tca which carry trace patchy pyrite ± chalcopyrite. These veins appear to be associated with a weak fracture/slip set, subparallel tca.	3747 3748 3749 3750 3751 3752 3753 3754 3755 3756 3757 3758 3759	640.50 641.20 642.20 643.00 644.00 645.00 646.00 646.50 647.00 647.70 648.50 649.00 650.00	641.20 642.20 643.00 644.00 645.00 646.00 646.50 647.00 647.70 648.50 647.00 647.70 648.50 649.00 650.00 651.00	0.70 1.00 0.80 1.00 1.00 0.50 0.50 0.70 0.80 0.50 1.00 1.00 1.00	Tr. Tr. Tr. Tr. Tr. Tr.	T 1- T 3- T 1- T T T T	1 1-3 2-5 2-5 2 2-5 2 2-5 4 5-10 5 3-5 1 3-5 3-5 3-5 3-5 3-5 3-5 3-5 3-5 3-5 3-5 3-5	0.05 0.07 0.22 0.03 0.02 0.02 0.02 0.48 0.02 0.04 0.02 0.02 0.02 0.02	

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INTE	RVAL	DESCRIPTION				SAN	IPLE			AS	SAYS
FROM	то		No.	From	To	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		652.10 - 652.30 Quartz + albite vein @ 20° tca. Cream buff, massive quartz + albite vein with minor, euhedral pyrite grains up to 3 mm. Small needles (≤ 1 mm) of galena? (trace) on haidine fractures	3761 3762 3763	652.00 652.50 672.00	652.50 653.00 673.00	0.50 0.50 1.00	Tr.	5 Tr. Tr.	5-10 2-3 2-3	0.02 0.02 0.01	
		673.20 Sericite + quartz + albite shear @ 25° tca. 2 cm wide, weak to moderate sericitic shear with a 2-3 mm wide, irregular white quartz + albite vein. Minor pyrite spots on sericitic foliation.	3764 3765	673.00 673.50	673.50 674.30	0.50 0.80	Tr. Tr.	Tr. 2-3	3-5 5-7	0.02	
		673.20 - 680.10 Graywackes become increasingly foliated and moderately sericitic toward shear zone and carry patchy quartz veins @ 0-15° tca.									
		674.80 2-3 cm wide, quartz + albite vein @ 30° tca with a 1 mm wide, pyrite seam on vein edge.	3766 3767 3768 3769 3770 3771	674.30 675.00 676.00 677.00 678.00 679.00	675.00 676.00 677.00 678.00 679.00 680.00	0.70 1.00 1.00 1.00 1.00 1.00	Tr	. 3-4 1 Tr.	5-7 3-5 3-5 3-5 5-7 5-7	NIL 0.01 0.01 NIL NIL 0.01	
		680.10 - 680.40 Sericitic shear @ 30° tca. Moderately strong, foliated to schistose graywacke with tight sericitic slips and minor, barren quartz + albite veins and pods.	3772 3773	680.00 680.60	680.60 681.20	0.60 0.60		Tr.	10-15 5-10	NIL 0.02	
681.00	686.80	 GRAYWACKE/CONGLOMERATE/LAPILLI TUFF 681.00 - 686.80 Graywackes grade to a polymictic pebble conglomerate at 681.0 - 684.6. 684.60 - 686.80 Graywacke interdigitated and intermixed with conglomerate and minor ash/lapilli tuff. Lower contact very sharp and intact @ 50° tca. 	3774 3775	681.20 682.00	682.00 683.00	0.80 1.00			5-7 3-5	0.01 NIL	
686.80	687.40	SILTSTONE Medium grey-green, chloritic \pm sericitic, very fine grained, massive to very finely bedded siltstone with minor interbedded graywacke. Bedding displays some weak intraformational folding. Sharp distinct bedding contacts 50°tca.									
687.40	715.00	LAPILLI TUFF/GRAYWACKE/MUDSTONE Intermixing of volcanic + sedimentary material (facies change). Predominantly a dark grey, chloritic lapilli tuff comprised of 2-5% angular clasts up to 3 cm (avg. 1 cm) which are typically light grey to buff-brown. Matrix is very fine grained ash with minor quartz, jasper etc. Also contains minor, rounded sedimentary clasts up to 3 cm. Non-magnetic. Primary(?) clast elongation @ 45° tca.									

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INTERVAL FROM TO		DESCRIPTION				SAI	MPLE			A	SSAYS
FROM	ТО		No.	From	То	Length %Rec	%Py 9	%QV	%Ser	Au, g/t	Au,Check
		 694.40 - 695.80 Aphanitic yellow-green mudstone horizon with irregular, internal bedding. Irregular, interfingered contacts. 711.75 - 712.10 Fault @ 40° tca. Chlorite + sericite + quartz + albite. 10 cm wide, white to blue-grey, fractured and sheared quartz + albite vein with strong, internal sericite + chlorite suturing. Very minor spotty pyrite. Weak to moderate gouge on slips adjacent to vein and moderate sericitization of wall rock over 5 cm. 	3776 3777 3778 3779 3780	710.00 711.00 711.70 712.20 713.00	711.00 711.70 712.20 713.00 714.00	1.00 0.70 0.50 0.80 1.00	Tr.	15	10-15 Tr.	0.01 NIL NIL NIL 0.01	
715.00	733.40	 ASH TUFF Massive, fine grained, chloritic + hematitic, light to dark green to purple ash tuff with up to 1-2% scattered, angular lapilli clasts up to 1 cm wide. Moderately to strongly magnetic. Non-descript with an overall mottled appearance due to abrupt colour variations due to varying degrees of hematization. 730.00 - 733.40 Weakly to moderately sericitic and weakly foliated and fractured. Contains a few sharp tight sericite slips and 1-2% irregular barren quartz + albite veins. 730.60 Fault @ 35° tca. Sericite + quartz + albite. 2-3 mm wide, sharp strong sericitic slip with a 1 cm wide, white-buff quartz + albite vein. 731.50 - 732.70 Fault slip @ 0-10° tca. Very sharp, tight sericite slip with well developed slickenslides. 	3781 3782 3783 3784 3785 3786 3786 3787 3788 3789	726.40 726.90 727.60 728.50 729.50 730.50 731.00 732.00 732.90	726.90 727.60 728.50 729.50 730.50 731.00 732.00 732.90 733.40	0.50 0.70 0.90 1.00 1.00 0.50		2-3 1-2 2-3 2-3 1-2	2-3 3-4 3-5 5-7 5-7 5-7	NIL NIL 0.01 0.01 0.01 NIL 0.01 0.01	
733.40	737.85	 GRAYWACKE/CONGLOMERATE 733.40 - 733.90 Fault @ 30-40° tca. Sericite + chlorite + quartz + albite. 40 cm wide, white-grey-brown quartz + albite vein with a pseudo-banded appearance due to strong, internal sericite + chlorite suturing and tight irregular slip planes. Graywackes are moderately sericitized with 10-15% irregular wispy sericite throughout. Typically barren, with very minor (nil to trace) spotty pyrite. 733.90 - 736.00 Moderately well foliated, fine grained graywacke with 5- 15% sericite as fine spots, irregular wisps and tight sericite slips @ 30-45° tca. Also contains 2-3% milk white, barren quartz + albite veins up to 1 cm wide. 	3790 3791 3792 3793	733.40 734.00 734.60 735.10	734.00 734.60 735.10 736.00	0.60 0.60 0.50 0.90	Tr. 3 Tr.	2-3 1-2 2-3	20-30 5-10 5-7 5-10	0.02 0.02 NIL 0.02	

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INTE	RVAL	DESCRIPTION				SAN	IPLE			AS	SAYS
FROM	TO		No.	From	То	%Ser	Au, g/t	Au,Check			
		736.00 - 737.85 Graywacke grades to a moderately well foliated, moderately sericitized polymictic pebble conglomerate. Lower contact displays some volcanic intermixing but is quite sharp @ 35° tca.	3794 3795	736.00 737.00	737.00 737.90	1.00 0.90		Tr. Tr.	5-7 5-7	0.03 0.01	
737.85	775.25	ASH/LAPILLI TUFF/CONGLOMERATE Massive, chloritic + hematitic, dark green to purple-brown, very fine grained ash tuff with scattered lapilli tuff sections. Clasts are subangular, 2-3 mm to 3 cm and vary from dark green to brown to purple. Moderately to strongly magnetic, non-descript, glassy. Weakly foliated @ 45° tca.	3796	737.90	738.60	0.70		Tr.	Tr.	0.01	
		759.00 - 768.00 Ash/lapilli tuff is intercalated with a dark green, chloritic, polymictic conglomerate horizons up to 1.5 m wide. Contacts are gradational to sharp @ 50° tca.	3797 3798 3799 3800 3801	738.60 771.00 772.00 773.00 774.00	739.50 772.00 773.00 774.00 774.50	0.90 1.00 1.00 1.00 0.50		Tr. 1	Tr. 1-3 2-4	0.01 NIL 0.03 NIL NU	
		774.65 - 775.25 Shear zone @ 65° tca. Sericite + chlorite + quartz + albite. Strongly foliated to schistose, sheared tuffs with strong, tight (≤ 1-2 mm), sericitic mud slips throughout at 1-15 cm intervals. Section contains 3-5% pods, stringers and veins up to 3 cm wide, of barren white quartz + albite. Very minor spotty pyrite in tuffs. Marks contact with sediments.	3802	774.50	775.25	0.75	Tr.	3-5	20-30	NIL	
775.25	814.10	GRAYWACKE 775.25 - 776.30 Sheared, fractured graywacke and conglomerate. Moderately well foliated sediments with a few sharp, tight sericitic slips. Interstitial to slips, sediments have a fractured "crack and seal" texture and they are cut by irregular, dark quartz + chlorite stringers up to 0.5 cm wide, "pseudo-brecciated". Pervasive wispy, spotty sericite and 2.3% late barren quartz + albite veins (5 1 cm)	3803 3804	775.25 775.75	775.75 776.40	0.50 0.65	Tr. Tr.	2-3 2-3	10-20 10-15	NIL NIL	
		 776.30 - 800.00 Graywackes are massive, non-bedded light to medium grey-green. Weakly to moderately sericitic with a pervasive wispy sericite evident in groundmass. Also contains 1-3% ubiquitous, late barren white quartz + albite veins up to 2 cm. Graywackes also contain a notable set of dark blue quartz + chlorite veins @ 30° tca. This vein set is spaced from a few cm's to 1-2 m apart but is persistent throughout. 	3805 3806 3807 3808 3809 3810 3811 3812	776.40 777.00 778.00 779.00 780.00 781.00 782.00 783.00	777.00 778.00 779.00 780.00 781.00 782.00 783.00 783.00 784.00	0.60 1.00 1.00 1.00 1.00 1.00 1.00 1.00	Tr. Tr. Tr. Tr. Tr. Tr. Tr. Tr.	2-4 2-3 1-2 2-3 1-2 2-3 2-3	5-10 5-7 3-5 3-5 3-5 3-5 3-5 3-5 5-7	NIL 0.01 0.01 0.01 0.01 0.01 0.01	

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INTE	RVAL	L DESCRIPTION					SAN	IPLE				ASS/	AYS
FROM	то			No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g	t I	Au, Check
INTE FROM	RVAL TO	800.00 - 814.10 806.25 - 806.35 810.00 - 812.00	DESCRIPTION These veins are typically narrow (1-3 mm) quartz ± chlorite stringers which have dark blue alteration halos up to 1-2 cm from vein. Minor, very fine pyrite evident in halos. Occasionally these veins appear to occupy a set of tight sericitic slips. Graywackes are massive, fine grained and contain 1-2% scattered pebbles and angular mudstone chips. Weak, pervasive sericite in groundmass. Cut by 1-2% barren, white quartz + albite veins up to 1 cm wide. Fault @ 55° tca. Sericite + chlorite + quartz. Moderately strong, tight sericite slip with a 5 cm wide, irregular, barren quartz + albite vein. Sporadic, irregular pyrite bands @ 5° tca, 1 mm to 0.5 cm wide, discontinuous, possibly primary.	No. 3813 3814 3815 3816 3817 3818 3819 3820 3821 3822 3823 3824 3825 3826 3827 3828 3829 3830 3831 3832 3833 3834 3835 3836 3837 3838 3839 3840 3841 3842 3843 3844	From 784.00 785.00 785.00 786.00 787.00 787.50 788.00 790.00 790.00 791.00 792.00 793.00 794.00 795.00 795.00 795.00 795.00 795.00 795.00 795.00 800.00 801.00 803.00 804.00 805.	To 785.00 786.00 787.00 787.50 788.00 799.00 791.00 792.00 793.00 794.00 795.00 795.00 795.00 795.00 795.00 795.00 795.00 795.00 795.00 795.00 795.00 800.00 800.00 801.00 805.00 804.00 805.00	SAN Length %Rec 1.00 1.00 1.00 0.50 0.50 1.00 1.00 1.00	APLE %Py Tr. Tr.	%QV 1-2 2-3 1-2 1-2 2-3 1 1-2 2-3 1 1-2 1-2 1-2 1-2 2-3 1-2 1-2 2-3 1-2 1-2 2-3 1-2 1-2 1-2 2-3 1-2 1-2 1-2 1-2 1-2 1-2 1-2 1-2	%Ser 3-5 5-7 3-5 5-7 3-5 3-5 3-5 3-5 3-5 3-5 3-5 3-5	Au, g Au, g 0.01 0.01 0.01 NIL NIL 0.03 0.01 NIL 0.03 0.01 0.02 0.01 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.01 0.02 0.02 0.01 0.02 0.01 0.02 0.02 0.01 0.02 0		AYS Au,Check
	814.10	Е. О. Н.		3845	813.50	814.10	0.60		1	2-3	0.0	:	

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PROPERTY TOWNSHIP	Amalgamated Kirkland Teck	DATE LOGGED LOGGED BY	August 7, 1992 - Au Mark Masson	gust 12, 1992	EASTING NORTHING	8124.5 10105.0	Depth	Method	Azimuth	Dip
CLAIM No, STARTED COMPLETED	L 491663, L 491651 August 6, 1992 August 11, 1992	DRILLED BY CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Heath & Sherwood Kirkland Lake Ware B.M.C.I. Sperry Sun	chouse	ELEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	340.6 Northland Technical 401.5 metres NQ	Note:	See table at for downhol	end of sumn surveys	ary log
PURPOSE	To test "102"/"103" struc	ctures.		1.1.15						
COMMENTS	"103" structure @ 305.0 "104" structure @ 393.1	0 - 331.00, 26.00 m. 0 - 398.15, 5.05 m.	SIGNED BY	(W. Benham)						

	SUM	MARY LOG			AS	SSAY SUMM	IARY
INTERVAL	DESCRIPTION	INTERVAL		DESCRIPTION	INTERVAL	LENGTH	AVERAGE
From To		From To			From To	in metres	Au g/t
0.00 1.20 1.20 25.30	OVERBURDEN LAPILLI/ASH TUFF		322.80 - 323.40	Ductile shear @ 30° tca, 1% pyrite, 5-7% quartz veins.	305.00 331.50	26.50	2.53
25.30 63.30	ASH TUFF		323.40 - 324.55	Quartz vein @ 30° tca, 15%	including		
	60.60 - 62.30 Fault @ 0-10° tca.			pyrite, 5% galena, and 1% cpy.	305.00 306.20	1.20	2.39
63.30 147.00	LAPILLI TUFF		324.55 - 324.95	Silicified, 10-15% fine grained py.		including	
	82.40 - 82.60 Fault breccia zone @ 60° tca.	324.95 350.45	LAPILLI TUFF		305.70 306.20	0.50	5.11
1	101.30 - 102.20 Fault @ 20° tca.		Bleached, scriciti	c, silicified.	including		
	104.20 - 104.60 Fault @ 25° tca.		324.95 - 329.70	5% quartz + albite veins @ 30-	321.00 329.50	8.50	6.35
	114.30 - 114.50 Fault @ 30° tca.			40° tca. 1-3% fine grained pyrite.		or	
1	130.00 - 130.60 Diabase dyke @ 20° tca.		329.70	Fault @ 25° tca.	315.20 329.50	14.30	4.43
147.00 231.00	ASH/LAPILLI TUFF		329.70 - 343.90	weakly toliated, moderately to	01500 01570	including	
231.00 270.00	LAPILLI/BLOCK/ASH TUFF			strongly sericitized. 5-10%	315.20 315.70	0.50	14.55
270.00 291.00	ASH/LAPILLI TUFF			chloritic amphibole laths. Trace -	315.70 321.00	5.30	0.41
291.00 314.40	LAPILLI TUFF			1% pyrite.	321.00 323.30	2.30	1.91
	292.50 Fault @ 30° tca.		332.80 - 332.95	Sericitic ductile shear zone @25°	323.30 325.00	1.70	23.48
	305.70 - 306.10 Silicified zone, foliated @ 60° tca,		A 40 AA AFA 45	ICA.	325.50 326.50	1.50	0.00
	2-4% pyrite, trace chalcopyrite		343.90 - 350.45	Moderately to strongly bleached,	326.50 329.50	3.00	2.88
	and galena.			chloritic tractures, trace pyrite.	329.50 331.50	2.00	0.36
314.40 324.95	ASH TUFF	350.45 401.50	LAPILLI TUFF				
	Silicified, chloritic, weakly sericitic.		370.00	Fault @ 50° ica.			
	314.40 - 322.80 1-3% quartz veins, trace -2% py.,		393.10 - 398.15	Moderately bleached and sericitic.			
	trace chalcopyrite and galena.	401.50	ЕОН				

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PROPERTY TOWNSHIP CLAIM No.	Amalgamated Kirkland Teck L 491663, L 491651	DATE LOGGED LOGGED BY DRILLED BY	August 7, 1992 - Augus Mark Masson Heath & Sherwood	t 12, 1992	EASTING NORTHING	8124.5 10105.0	Depth	Method	Azimuth	Dip
STARTED COMPLETED	August 6, 1992 August 11, 1992	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake Warehou B.M.C.I. Sperry Sun	ise	LENGTH UNITS CORE SIZE	Northland Technical 401.5 metres	Note:	See table b surveys	clow for dov	/nhole
PURPOSE	To test "102"/"103" struct	ures.								
COMMENTS	"103" structure @ 305.00 "104" structure @ 393.10	- 331.00, 26.00 m. - 398.15, 5.05 m.	SIGNED BY -	(W. Benham)	<u></u>					

				SUM	MARY LOG		ASSAY SUMMARY					
INTERVAL From To		DESCRII	PTION		INTERVAL From To	DESCRIPTION	INTERVAL From To	LENGTH in metres	AVERAGE Au g/t			
]								
	Depth	Method	Azimuth	Dip								
	Collar	Compass	341									
	23.0	Sperry Sun	336	69.5								
	96.5	Sperry Sun	331	67.5				i.				
	169.0	Sperry Sun	330	66.5								
	224.0	Sperry Sun	330	65.5								
	297.0	Sperry Sun	327	64								
	370.0	Sperry Sun	329	63.5								
	398.0	Acid		63								

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INTE	RVAL	DESCRIPTION				SAN	IPLE	<u> </u>	AS	SAYS
FROM	TO		No.	From	То	Length %Rec	%Py %QV	%Ser	Au, g/t	Au,Check
0.00	1.20	OVERBURDEN								
1.20	25.30	LAPILLI/ASH TUFF Massive to poorly bedded @ 30° tca, dark green to mauve, chloritic to hematitic, heterolithic lapilli tuff comprised of 3-10% subangular clasts from 2-3 mm to 4 cm (avg 1 cm). Clasts are light brown, grey, green and red-pink trachyte in a very fine grained ash matrix. In part intercalated with ash tuff up to 1.5 m. Patchy moderate magnetics.								
		 8.70 Fault @ 35° tca. Chlorite + sericite + calcite + ankerite. Sharp tight slip with a 1 cm wide, rusty, ankeritic stained, quartz + calcite vein. 11.80 - 12.30 Fault @ 15° tca. Chlorite + sericite + ankerite. Tight, sharp irregular sericitic slip with strong, ankeritic staining up to 10 cm from slip. 13.70 - 14.20 Fault @ 15° tca. Chlorite + sericite + ankerite. 5-6 cm wide, ankeritic stained, quartz-carbonate vein bounded by tight, strong slip planes. 20.40 - 20.60 Fault slip @ 15° tca. Chlorite + sericite + ankerite. Weak sericite + chlorite slip with 1-2 cm wide, ankeritic staining in wall rock. 25.25 - 25.30 Fault @ 50° tca. Chlorite + sericite + quartz + ankerite. 3 cm wide, rusty quartz/ankerite vein bounded by tight, sharp chloritic slips. Non-mineralized. 				1				
25.30	63.30	 ASH TUFF Massive, fine grained, grey-green to mauve hematitic ash, comprised of very fine grained, heterolithic fragments, up to 2 mm, in an aphanitic groundmass. Patchy, strong magnetics. Similar to previous lapilli tuff. 1-2%, ubiquitous, barren quartz + albite veining. Locally grades to equivalent lapilli tuff. Lower contact of unit is gradational over 1 m. 42.20 - 42.80 Fault @ 5-10° tca. Chlorite + sericite + quartz + albite. Irregular, wavy chloritic slip with a 2-3 cm wide, white-pink quartz + albite vein. 46.20 Fault slip @ 20° tca. Chlorite + sericite + quartz + albite. Tight, sharp chloritic slip with minor quartz + albite vein (2-3 mm wide). Moderate sericitization of wall rock up to 10 cm from slip. 								

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INTE	RVAL	DESCRIPTION					SAN	IPLE			AS	SAYS
FROM	ТО		No.	From	То	Length	%Rec	%Pv	%OV	%Ser	An oft	Au Check
		 60.60 - 62.30 Fault @ 0-10° tca. Chlorite + sericite + quartz + albite. Strong, tight irregular slip subparallel tca. 0.5-2 cm wide, massive to brecciated quartz + albite vein on slip wall. Moderately strong, sericitization of wall rock. Non- mineralized cross-fault. 										
63.30	130.00	 LAPILLI TUFF Massive, dark green to purple, chloritic to hematitic, heterolithic lapilli tuff comprised of 5-15% angular to subrounded, trachytic clasts (avg. 1 cm) in a very fine grained ash matrix. Clasts are 60% red-pink trachyte/syenite, 25% dark green fine grained volcanics and 15% other various clasts. Similar to block tuff, slightly less magnetic. Patchy strong magnetics. Locally grades to a hematitic fine grained ash. Lower contact is gradational and somewhat arbitrary. 66.00 - 66.20 Fault @ 40° tca. Chlorite + sericite + quartz + albite. 9-10 cm wide, irregular white-pink quartz + albite vein hosted within crushed, deformed lapilli tuff with tight sharp slip planes. Non-mineralized. 82.40 - 82.60 Fault breccia @ 60° tca. Chlorite + quartz + calcite. Brecciated quartz ± calcite fragments up to 2 cm in a dark chloritic matrix. Moderate gouge developed on tight chloritic slips. Non-mineralized. 101.30 - 102.20 Fault @ 20° tca. Chlorite ± sericite ± quartz + calcite. Strongly foliated to sheared, sericitized lapilli tuff. 101.70 - 102.10 Massive, vuggy white-pink quartz/calcite vein with strong, chloritic slip boundaries. Weak to moderate mud gouge, non-mineralized. 104.20 - 104.60 Fault @ 25° tca. Chlorite ± quartz + calcite. Strong, mud gouge break with minor quartz + calcite pods. Predominantly chloritic mud. 114.00 - 114.10 Fault @ 30° tca. Sericit = chlorite + quartz + albite. 4 cm wide, white-pink quartz + albite vein with strong, internal sericitic suturing and bounded by tight, strong chloritic slips. 				,						
		114.30 - 114.50 Fault @ 30° tca. Sericite + chlorite + quartz + albite. Strong, tight chlorite + sericite mud slips (2 mm) and a broken rubbly quartz + albite vein, non-mineralized.										

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INTE	ERVAL	DESCRIPTION	SAMPLE								CAVC
FROM	то		No.	From	То	Length %Rec	%Pv	%0V	%Ser	Au ah	Au Check
		116.75 Fault @ 40° tca. Chlorite + quartz + albite. 2-3 mm wide, strong chloritic break with moderate gouge and minor brecciated quartz + albite veining.								210, 8/1	Aujeineux
130.00	130.70	 DIABASE DYKE 130.00 - 130.60 Diabase dyke @ 20° tca. Massive, fine grained, dark green diabase with sharp, chilled contacts. Non-magnetic. 130.60 - 130.70 Quartz + albite breccia vein @ 20° tca. 2 cm wide, barren white quartz + albite vein with angular wall rock tuff fragments to 1 cm. Bounded on one side by diabase, other by a tight chloritic slip. 									
130.00	147.00	LAPILLI TUFF Massive, coarse, dark grey-green to dirty brown to mauve chloritic + hematitic heterolithic lapilli tuff comprised of 5-20% angular to subrounded clasts from 2 mm to 4 cm (avg 1-2 cm) in a very fine grained chloritic ash matrix. Clasts are dark red-pink, green grey-brown and buff trachytes in roughly equal proportions. Patchy, strong magnetics. Lower contact is gradational across 10-20 cm.				ų					
		133.35 - 133.40 Fault @ 50° tca. Sericite + quartz. 3 cm wide, white-pink, quartz ± albite vein, bounded by sharp sericitic slips. Quite weak, no wall rock alteration.									
147.00	231.00	ASH TUFF/LAPILLI TUFF Massive, chloritic, fine to very fine grained, dark green, ash tuff comprised of very fine grained heterolithic lithics, up to 2 mm wide, in an aphanitic dark groundmass. Minor dispersed lapilli clasts and lapilli tuff horizons up to 1 m wide. Moderately magnetic. Clasts or lithic fragments consist primarily of red trachyte/syenite, light grey-buff trachytes and dark green volcanic. Lower contact is gradational and somewhat subjective.									
		 151.00 - 151.10 Fault @ 45° tca. Chlorite + sericite + quartz. Foliated to schistose, moderately sericitized tuff with three sharp, tight chloritic slips and minor, irregular quartz veining. 160.00 Appears to be very faintly bedded @ 20° tca. 									
231.00	270.00	LAPILLI/BLOCK/ASH TUFF Massive, chloritic, undeformed dark green to dark mauve hematitic lapilli block tuff. Comprised of 2-10%, subangular to well rounded heterolithic									

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INTE	RVAL	DESCRIPTION	SAMPLE No. From To Length %Rec. %Py %OV %Ser								SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		clasts ranging from 2-3 mm to 10 cm (avg 2-3 cm) in a very fine grained lithic ash matrix. In part interdigitated with ash tuff horizons up to 2 m wide. Predominant clast type is a pink-red, fine grained to spotted trachyte/syenite which account for approximately 70% of clast types. Remaining 30% is comprised of equal amounts of dark green, light grey and buff trachytes. Strongly magnetic. Very similar to base line block tuff but with a more heterolithic clast component. Lower contact of unit is gradational and arbitrary.									
270.00	291.00	 ASH/LAPILLI TUFF Massive, chloritic, dark to medium grey-green, fine to very fine grained, undeformed ash tuff with minor, intercalated lapilli horizons from 10 cm to 1 m wide. Pervasive, moderate to strong magnetics. Unit contains 1-2%, ubiquitous, barren white-pink quartz + albite veining. Where clasts are evident in coarser ash to lapilli horizons they consist of poorly sorted, subangular to well rounded heterolithic lithics. Lower contact of unit is gradational over 1 m. 273.10 - 273.20 Fault slip @ 30° tca. Tight weak chloritic slip with a 3 cm wide, white to pink quartz + calcite breccia vein. 290.20 - 291.50 Fault slip @ 0-5° tca. Chlorite + quartz + calcite. Irregular, tight fracture subparallel tca, lined with a 0.5 - 1 cm wide, white to pink quartz + calcite avein 				,					
291.00	314.40	LAPILLI TUFF Massive, chloritic \pm hematitic, dark green to green-brown to purple, heterolithic lapilli tuff comprised of 3-15%, angular to well rounded trachytic clasts from 2 mm to 10 cm+ (avg 2-3 cm) in a dark, very fine grained ash matrix. Strong pervasive magnetics. Quite a coarse, clast-rich lapilli tuff to 308.0 m, conglomeratic in appearance but definitely trachytic.									
		 292.50 Fault @ 30° tca. Chlorite + quartz + albite. 1.5 cm wide, white-pink quartz + albite vein bounded by sharp, tight chlorite slips with weak gouge. 305.70 - 306.10 Foliated silicified zone, pyrite + chalcopyrite ± galena. Weakly foliated, fractured and silicified section. At 306.0 m there is a very sharp slip @ 60° tca. Section displays a 	3846 3847 3848 3849 3850 3851	303.00 304.00 305.00 305.70 306.20 307.00	304.00 305.00 305.70 306.20 307.00 308.00	1.00 1.00 0.70 0.50 0.80 1.00	Tr. 2-3	Tr. 30 Tr.	Tr. 3-5 Cpy/Gal Sil Tr.	NIL NIL 0.44 5.11 0.02 0.01	

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INTE	RVAL	DESCRIPTION				S	SAMPLE			AS	SAYS
FROM	то		No.	From	То	Length %Re	.ec %Py	%QV	%Ser	Au, g/t	Au,Check
		 weak to moderate pervasive blue-grey tinge (silicification) and a pseudo-brecciated, "crack and seal" texture infilled with narrow (\$1 mm) quartz stringers. Zone contains 2-4% pyrite as fine disseminations and concentrated on fractures. Minor chalcopyrite is evident and associated with narrow, white-grey quartz stringers. May also carry minor galena. Edges of alteration are irregular and somewhat gradational into surrounding wall rock. 308.00 - 314.40 Grades to a fine grained, chloritic ash. 	3852 3853 3854 3855 3856 3857 3858	308.00 309.00 310.00 311.00 312.00 313.00 314.00	309.00 310.00 311.00 312.00 313.00 314.00 314.40	1.00 1.00 1.00 1.00 1.00 1.00 0.40		Tr. Tr.	Tr. Tr. Tr. Tr. Tr. Tr.	NIL NIL NIL NIL NIL 0.01 NIL	
314.40	324.95	ASH TUFF Massive, fine to very fine grained, medium grey-green, chloritic ash tuff with minor scattered lapilli clasts. Moderate to strong patchy magnetics. Ash tuffs in general display a weak pervasive sericite and trace pyrite alteration. Pyrite occurs as small subhedral grains (≤ 1 mm) often with dark, chloritic rims, pervasively disseminated throughout the tuff and occasionally in small clusters. Proximal to sulphide-bearing veins, tuff is typically light green and sericitic or blue-grey and silicified with 1-3% disseminated pyrite.				I					
		 314.40 - 314.45 Fault breccia @ 80° tca. Chlorite + quartz. 2 cm wide, open vuggy brecciated quartz vein. 315.40 Quartz + pyrite + galena ± chalcopyrite vein @ 50° tca. 4 cm wide, white quartz + albite vein which has been fractured and brecciated and infilled by a later blue-grey quartz + pyrite + galena + chalcopyrite. Vein has at least two types of pyrite; very fine grained anhedral pyrite on fractures and foliated wall rock; subhedral grains and grain clusters up to 2 mm, Total pyrite content is 3-4%. Trace galena occurs as sporadic clusters and masses within vein. Very minor spotty chalcopyrite. 315.50 1 cm wide, quartz + albite + pyrite + galena vein as above. Adjacent to veins, tuff is light green and moderately sericitized with 0.5% disseminated pyrite. 	3859 3860 3861	314.40 315.20 315.70	315.20 315.70 316.50	0.80 0.50 0.80	Tr. 2 Tr.	Tr. 2-3 Tr.	Tr. 5-7 2-3	NIL 14.44 0.41	14.67

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INTE	RVAL	DESCRIPTION				SAN	IPLE				AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser		Au, g/t	Au,Check
		318.20 Quartz + pyrite + galena vein @ 50° tca. 0.5 - 1 cm wide, vein with 5-7% pyrite in vein and trace galena on thin internal fractures. Adjacent to vein is an irregular, dark grey alteration hole up to 7 cm from vein. This appears to be slightly silicified tuffs with 1% disseminated	3862 3863 3864	316.50 317.50 318.00	317.50 318.00 319.00	1.00 0.50 1.00	Tr. Tr. 1-2	Tr. Tr. 3-4	2-3 Tr. 5-7		0.11 0.13 1.61	
	•	 pyrite. 318.35 - 318.55 Chlorite + sericite slip @ 15° tca. Adjacent to this tight slip is a 1-2 cm, irregular quartz ± albite vein with minor pyrite + galena. 320.75 - 320.95 Fault @ 20° tca. Chlorite + sericite + quartz + albite. 4 cm wide, white-buff-grey, quartz ± albite vein with strong, internal chlorite + sericite suturing and bounded by sharp, tight chloritic slips. Very minor spotty euhederal rules and balancements. 	3865 3866 3867 3868 3869	319.00 320.00 320.50 321.00 322.00	320.00 320.50 321.00 322.00 322.50	1.00 0.50 0.50 1.00 0.50	Tr. Tr. Tr. Tr. Tr.	Tr. Tr. 2-3 Tr. 1-2	2-3 Tr. 2-3 Tr. 3-5		0.02 NIL 0.12 2.62 1.20	
		322.80 - 323.40 Sericitized sheared tuff (ductile shear) @ 30° tca with 10% milk-white, late quartz + albite veins and pods. Sericitized sheared tuff contains 1-2% very fine grained, disseminated pyrite.	3870	322.50	323.30	0.80	1	5-7	10-15		1.48	
		323.40 - 324.55 Quartz + pyrite + galena + chalcopyrite vein @ 30° tca. Dark blue-grey to white quartz (quartz breccia) vein with 20-25 % sulfide (15% pyrite, 5% galena, 1% chalcopyrite). Pyrite occurs as; very fine grained, semi- massive sections and as coarse subhedral crystals and crystal aggregates. Chalcopyrite is spatially associated with the pyrite and occurs as small irregular anhedral masses. Galena occurs as small sub-euhedral crystal clusters and probably disseminated through quartz giving it the dark blue colour.	3871 3872 3873	323.30 323.75 324.20	323.75 324.20 324.55	0.45 0.45 0.35	5-10 5-10 5-10	60 70 70	5 3-5 2-3	Gal/Cpy Gal/Cpy Gal/Cpy	46.36 21.05 19.95	46.99
324.95	350.45	 324.55 - 324.95 Tuffs are moderately foliated, dark grey and appear to be moderately silicified. Section contains 10-15%, very fine grained disseminated pyrite. Gradually gives way to less pyritic, sericitic tuffs. BLEACHED LAPILLI TUFF Moderately deformed, weakly foliated, altered lapilli tuff. Quite variable from dark green chloritic to vallou green sericitic to dirty grey brown 	3874	324.55	325.00	0.45	10-15	3-4	5-7		5.45	
		sericitic + silicified. Lower contact is sharp and distinct @ 50° tca.										

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INTERV	VAL	DESCRIPTION	[SAM	IPLE			AS	SAYS
FROM 7	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		 324.95 - 329.70 5% quartz ± albite veins up to 2 cm wide, predominantly @ 30-40° tca. These veins are generally barren, however the adjacent wall rock is frequently altered and sericitic and contains up to 3% very fine grained disseminated pyrite up to 5 cm from vein wall. Spacing of veins determines overall mottled appearance and colour variations. 329.70 Fault @ 25° tca. 1-2 mm wide, strong tight chloritic slip with moderate gouge and well developed slickenslides (horizontal). 329.70 - 343.90 Weakly foliated, massive lapilli tuff with a weak to moderate to strong sericitization. Comprised of 5-7%, angular to subrounded, heterolithic clasts up to 10 cm (avg 2 cm). Clasts are pink-red, dark green, buff and light grey, fine grained to spotted trachyte. In places clasts display diffuse, hazy edges due to penetrating alteration (sericitization) of groundmass. Matrix consists of 5-10%, black subhedral laths up to 2 mm, (chloritized amphibole?) in a very fine grained groundmass. This altered tuff contains patchy zones of finely disseminated pyrite up to 1-2% and 2-3% ubiguitous quartz + albite 	3875 3876 3877 3878 3879 3880 3881 3882 3883 3884 3885 3886 3887 3888 3888 3888 3889	325.00 325.50 326.00 326.50 327.00 327.50 328.00 328.50 329.00 329.50 330.00 330.50 331.00 331.50 332.00	325.50 326.00 326.50 327.00 327.50 328.00 328.50 329.00 329.50 330.00 330.50 331.00 331.50 332.00 332.50	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1-2 1-2 2-3 1-2 2-3 1-2 2-3 1-2 2-3 1-2 Tr1 Tr1 Tr1 Tr1 Tr1	3-5 3-4 2-3 3-5 2-3 3-5 2-3 3-5 2-3 1-2 1-2 Tr. Tr. Tr. Tr.	10-15 5-10 5-10 5-10 5-10 5-10 5-10 5-10 5-7 3-5 3-5 3-5 3-5 3-5 3-5 3-5 3-5	0.89 0.72 0.38 3.22 1.12 5.95 3.29 1.74 2.06 0.51 0.54 0.24 0.14 0.02 0.04	5.78
		 veins and stringers. 332.80 - 332.95 Sericitic shear @ 25° tca. Sericite + chlorite + quartz. Ductile shear with a set of tight sericite + chlorite slips and 2-3%, barren white quartz + albite pods. Trace pyrite in bleached tuff. 335.40 Fault slip @ 30° tca. Chlorite + quartz ± pyrite. Tight sharp, quartz + chlorite slip with minor disseminated pyrite. 335.20 - 337.20 Tuff is quite strongly bleached and sericitized and appears to be moderately silicified. Nil to trace disseminated pyrite. 	3890 3891 3892 3893 3894 3895 3896 3897 3898 3899 3900 3901 3902 3903 3904 3905	332.50 333.00 334.00 335.00 335.50 336.10 336.60 337.10 338.00 338.50 339.00 339.50 340.00 341.00 342.00 343.00	333.00 334.00 335.00 335.50 336.10 336.60 337.10 338.00 338.50 339.00 339.50 340.00 341.00 341.00 343.00 343.90	0.50 1.00 1.00 0.50 0.60 0.50 0.50 0.50 0.50 0.50 0	Tr. Tr. Tr. Tr1 Tr1 Tr. Tr. Tr. Tr. Tr. Tr.	1-2 1-2 Tr. 2-3 Tr. 5-7 Tr. 2-3 2-3 2-3 2-3 1-2 Tr. Tr. Tr.	5-7 3-5 3-5 5-10 5-7 5-7 5-7 5-7 5-7 5-7 5-7 5-7 5-7 5-7	0.02 0.02 NIL 0.03 0.04 NIL 0.04 0.01 0.01 0.01 0.01 NIL NIL 0.02 NIL	

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INTE	RVAL	DESCRIPTION				SAN	APLE		<u> </u>	AS	SAYS
FROM	ТО		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au,Check
		343.90 - 350.45 Moderately to strongly bleached, sericitized and contains a prominent set of chloritic slips (≤ 2 mm) @ 30-45° tca, spaced @ 10 cm to 1 m intervals. Section displays a weak to moderate "crack and seal" texture due to irregular hairline chloritic seams. Very minor disseminated and spotty pyrite.	3906 3907 3908 3909 3910 3911 3912 3913	343.90 344.50 345.00 345.50 346.00 346.50 347.00 348.00	344.50 345.00 345.50 346.00 346.50 347.00 348.00 348.50	0.60 0.50 0.50 0.50 0.50 0.50 1.00 0.50	Tr. Tr. Tr. Tr. Tr. Tr. Tr.	1-2 Tr. 1-2 Tr. 1-2 Tr. 2-3 2-3	5-10 5-7 5-7 3-5 3-5 5-7 5-10 5-7	NIL NIL NIL 0.02 0.03 0.01 0.04	
		 348.90 - 349.00 Sericitic shear @ 70° tca. Well foliated, sericitic ductile shear with minor 1-2 mm quartz stringers. 349.00 - 350.45 Alteration (sericite) gradually gives way to a chlorite ± hematite assemblage. 	3914 3915 3916	348.50 349.50 350.00	349.50 350.00 350.50	1.00 0.50 0.50		2-3 1-2 Tr.	3-5 3-5 2-3	0.02 0.02 0.03	
350.45	401.50	LAPILLI TUFF Massive, medium green, chloritic to purple hematitic lapilli tuff comprised of 5-7% angular lapilli clasts (3 mm - 5 cm) floating in a fine grained ash matrix. Clasts are light grey, buff-pink and dark green volcanics. Moderate, pervasive magnetics. < 1% scattered, barren quartz + albite veining. 350.45, 354.20 Moderately deformed, preudo brecointed with a formation	2017	250.50	251.00	0.50		T -	2.2		
		and seal", chlorite and quartz + chlorite hairline fracturing and contains trace to 2-3% white, quartz + albite veining which is generally barren.	3917 3918 3919 3920 3921 3922 3923 3924	350.30 351.00 352.00 353.00 354.00 354.90 355.50 356.00	351.00 352.00 353.00 354.00 354.90 355.50 356.00 357.00	0.50 1.00 1.00 0.90 0.60 0.50 1.00	Tr. Tr. Tr.	1r. 2-3 1-2 1-2 Tr. 1-2 Tr. 2-3	2-3 3-5 3-5 2-3 3-5 2-3 2-3 2-3	NIL NIL NIL NIL NIL 0.01 0.04	
		 370.00 Fault slip @ 50° tca. Chlorite + quartz ± calcite. 0.5 cm wide, white-pink quartz vein bounded by tight chloritic slips with weak gouge. 392.90 - 393.10 Irregular mudstone horizon with a very sharp, chloritic slip @ 25° tca @ 392.90. 393.10 - 398.15 Moderately sericitized and bleached to a light buff colour. In places bleaching is patchy giving section an overall mottled appearance. Section contains numerous, tight sericitic slips. 398.15 Fault @ 30° tca. Chlorite + sericite + quartz. Moderately strong, tight shear with minor barren quartz. 	5724	550.00				23	2-3	0.04	
	401.50	E. O. H.									

HOLE: AK-92-45

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INTERVAL				DE	SCRIP	TION						SAN	MPLE	 ASS	SAYS
FROM	то								No.	From	То	Length %Rec	%Pv %OV %Ser	 Au alt	Au Check
INTE FROM	RVAL TO	Additional A Sample No. 3848 3849 3860 3861 3862 3863 3864 3865 3866 3865 3866 3867 3868 3869 3870 3871 3872 3873 3874 3875 3876 3877 3878 3879 3880	Ag (ppm) 0.3 5.1 5.8 0.3 0.1 0.1 1.3 0.1 0.1 0.2 0.9 0.4 0.7 36.2 75.3 89.0 4.6 1.4 1.2 0.6 2.1 0.5 3.1	DE Cu (ppm) 178 647 389 96 67 57 179 50 41 143 54 85 91 2840 5110 6220 175 307 190 85 171 221 425	Mo (ppm) 7 10 13 3 2 2 5 2 2 2 4 4 3 6 13 10 12 14 4 5 5 5 2 3	Pb (ppm) 16 1.17% 9260 80 21 35 2100 19 10 264 25 47 32 1.07% 9.50% 8.46% 624 454 652 2666 144 72 66	Zn (ppm) 159 134 892 111 135 121 86 116 108 115 176 165 63 67 119 113 2 38 40 36 29 41 33	Te (ppm) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 7 3 2 1 1 1 1 2 1 1	No.	From	To	SAN Length %Rec	MPLE %Py %QV %Ser	ASS Au, g/t	Au,Check
		3880 3881 3882 3883 3884	3.1 1.7 0.9 1.1 0.3	425 98 45 32 80	3 5 11 15 5	66 59 35 34 17	33 34 34 41 65	1 1 1 1							
		3885 3886 3887	0.2 0.2 0.1	41 25 45	3 4 3	20 12 8	81 98 87	1 1 1							

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HOLE: AK-90-25/92-25 Ext.

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PROPERTY TOWNSHIP	Amalgamated Kirkland Teck	DATE LOGGED LOGGED BY	Nov. 29 - Dec. 3, 1990; August 14, 1992 Mark Masson	EASTING NORTHING	8124.5 10150.8	Depth	Method	Azimuth	Dip
CLAIM No. STARTED COMPLETED	L 491663 Nov 27/90; Aug 12/92 Nov 30/90; Aug 13/92	DRILLED BY CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Heath & Sherwood Kirkland Lake Warehouse B.M.C.I. Sperry Sun	ELEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	339.3 Northland Technical 198.5 metres NQ	Note:	See table at for downhol	end of sumn surveys	ary log
PURPOSE	To test "102"/"103" zones	5.	W.B						
COMMENTS	"102" zone @ 102.65 - 1 "103" zone @ 135.50 - 1 "104" zone @ 183.30 - 1	06.00, 3.35 m 49.55, 14.05 m 90.00, 6.70 m	SIGNED BY (W. Benham)					

	SUM	ASSAY SUMMARY				
INTERVAL	DESCRIPTION	DESCRIPTION INTERVAL DESCRIPTION				
From To		rrom 10		From 10	in metres	Au gr
0.00 3.80	CASING		135.50 - 135.60 Silicified, 2-3% pyrite.	102.65 106.00	3.35	1.30
3.80 22.40	ASH TUFF		136.10 - 136.70 Siltstone with 30% quartz +	including		
22.40 22.60	SILTSTONE		sericite veinlets, 0.5% pyrite.	103.90 104.40	0.50	8.01
22.60 23.10	COARSE LAPILLI TUFF	142.90 149.25	LAPILLI/ASH TUFF			
23.10 23.95	SILTSTONE		145.00 Fault @ 45° tca.	144.50 145.10	0.60	0.17
23.95 27.50	COARSE LAPILLI TUFF		145.00 - 149.25 Irregular, weak sericitic alteration,			
27.50 32.85	ASH TUFF		trace pyrite, trace 0.05 - 0.5 cm			
32.85 68.60	LAPILLI TUFF		wide quartz + albite veins.			
68.60 86.30	LAPILLI TUFF		149.10 - 149.25 Moderately well foliated @ 70 -			
	Sericitic.					
86.30 94.10	LAPILLI TUFF	149.25 183.30	GRAYWACKE/LAPILLI TUFF/MUDSTONE			
	Weakly sericitic.		149.25 - 149.55 Moderately well foliated @ /0 -			
94.10 102.65	ASH TUFF		BU" ICA.			
	Hematitic.	100.00 100.00	149.55 - 183.30 Massive to weakly tollated.			
102.65 104.50	QUARTZ - PYRITE BRECCIA ZONE	183.30 198.50	GRAYWACKE 182.20.100.00. Oversta (chlorite llemok & cecili			
	102.65 - 103.40 Fault zone, trace pyrite.		183.30 - 190.00 Quartz + chionie "crack & sear"			
	104.10 - 104.25 Brecciated quartz vein, 3-5%		Icklure. Trace pyrile.			
1	pyrite.		bade			
104 50 122 25	I 104.40 - 104.50 FBUIL DIECCIA.	108 50	FON			
104.30 132.33	114 20 115 25 Sericitic groundske () 50% merite	198.50	Hole extended from 142.90 to 198.50			
122 35 142 00	I ADILLI THEF		August 12 - 13, 1992.			
156.55 146.70		ļ				

HOLE: AK-90-25/92-25 Ext.

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PROPERTY TOWNSHIP	Amalgamated Kirkland Teck	DATE LOGGED LOGGED BY	Nov. 29 - Dec. 3, 1990; August 14, 1992 Mark Masson	EASTING NORTHING	8124.5 10150.8	Depth	Method	Azimuth	Dip
CLAIM No. STARTED COMPLETED	L 491663 Nov 27/90; Aug 12/92 Nov 30/90; Aug 13/92	DRILLED BY CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Heath & Sherwood Kirkland Lake Warehouse B.M.C.I. Sperry Sun	ELEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	339.3 Northland Technical 198.5 metres NQ	Note:	See table b surveys	elow for dov	/nhole
PURPOSE	To test "102"/"103" zones	i.							
COMMENTS	"102" zone @ 102.65 - 16 "103" zone @ 135.50 - 14 "104" zone @ 183.30 - 19	06.00, 3.35 m 49.55, 14.05 m 90.00, 6.07 m	SIGNED BY (W. Benham)						

				SUM	MARY LOG		AS	SSAY SUMM	ARY
INTERVAL From To	DESCRIPTION				INTERVAL From To	DESCRIPTION	INTERVAL From To	LENGTH in metres	AVERAGE Au g/t
	Depth	Method	Azimuth	Dip					
	Collar	Compass	341	55					
	38.0	Acid		54					
	76.0	Acid		53					
	114.0	Acid		50					
	196.0	Acid	337	44					
							·		

HOLE: AK-90-25/92-25 Ext.

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INTE	ERVAL	DESCRIPTION				SAN	APLE .	· · · · · · · · · · · · · · · · · · ·	4	SAVS
FROM	то		No.	From	То	Length %Rec	%Pv %OV	%Ser	Au at	Au Cheek
0.00	3.80	CASING								Au,Check
3.80	22.40	 ASH TUFF Massive, fine grained, dark grey-green to brown, with 40% heterolithic, trachyte clasts, up to 1 mm, in a dark grey, aphanitic groundmass; minor intercalated lapilli-tuff beds up to 0.5 metres wide; moderately to strongly magnetic. 12.35 - 12.50 Fault @ 27° tca: chlorite + sericite ± quartz; strong, tight chloritic slip with a 3-4 cm buff-pink quartz veinlet. 18.50 - 20.20 Moderately well bedded @ 50° tca, with alternating hematitic and non hematitic beds. 20.40 - 22.30 Weakly sericitized, poly-suturing texture due to abundant chloritic fractures; cut by 1-2% quartz+chlorite veinlets and slips up to .5 cm 22.30 - 22.40 Fault @50° tca; very strong sharp sericite + chlorite mud break with evidence of brecciation in immediate wall rock. 								
22.40	22.60	SILTSTONE Fine grained to aphanitic, dark green siltstone with 2%, < 0.5 mm quartz veinlets with pale green alteration halos; strong tight contacts with chloritic slips.				,				
22.60	23.10	COARSE, HETEROLITHIC LAPILLI TUFF Massive, dark green-brown with 25% coarse, angular to sub-rounded, heterolithic, red-pink to green to grey and very fine grained to porphyritic trachyte clasts, up to 5 cm (avg. 2 cm) in a fine grained, chloritic ash matrix; very similar to conglomerate but contains all trachytic clasts and no quartz within matrix.								
23.10	23.95	SILTSTONE Fine grained to aphanitic, dark green siltstone with 2-3% irregular, ≤ 0.5 mm wide, quartz veinlets with light green alteration halos; contacts of unit are sharp chloritic slips @ 30° tca.								
23.95	27.50	COARSE, HETEROLITHIC LAPILLI TUFF As at 22.60 metres; massive, coarse heterolithic tuff with 25% angular to sub-rounded trachyte clasts up to 5 cm (avg. 2 cm), which are extremely variable in colour and texture, in a weakly hematized, aphanitic matrix; weakly magnetic; lower contact of unit is gradational.								
HOLE: AK-90-25/92-25 Ext.

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INTE	RVAL	DESCRIPTION	1					- <u></u>	
FROM	то					SAI		AS	SAYS
			NO.	From	То	Length %Rec	%Py %QV %Ser	Au, g/t	Au,Check
27.50	32.85	ASH TUFF Massive, fine grained, dark green to purple where hematitic, weakly magnetic and cut by 2% barren buff-white quartz veinlets up to 0.5 cm wide; lower contact of unit is a sharp sericite + talc slip; rubbly core.							
32.85	68.60	 LAPILLI TUFF Massive, dark green to grey-brown, with 5-10% angular, predominantly buff-brown and grey-green, fine grained to spotted trachytic clasts, up to 2 cm (avg. 1 cm) in a very fine ash matrix; intercalated ash tuff horizons up to 75 cm wide which are massive, non-bedded and display gradational contacts; locally strongly magnetic. 38.35 - 39.50 Fault @ 05° tca; sharp chlorite slips running sub-parallel tca with a 0.5-1 cm white-pink quartz + ankerite vein on slip plane, with local angular wall rock fragments within the vein. 41.50 - 42.30 White-pink quartz + ankerite vein @ 5°-10° tca, with angular wall rock inclusions up to 3-4 cm long which display very weak sericite alteration. 44.10 - 44.60 Fault @ 05° tca; sharp, open, vuggy slip plane with pink-white quartz + ankerite vein. 59.80 Fault @ 30° tca; chlorite + sericite + quartz; 1 cm wide laminated shear zone of alternating chlorite, sericite and current. 							
68.60	86.30	 SERICITIZED LAPILLI TUFF Pale green, with 2-3% black and white, salt and pepper textured clasts which often display very diffuse, altered boundaries; possibly matrix rather than clasts?; matrix of unit is pervasively sericitized, very fine grained to aphanitic mush, and is cut by 1-2% late, white quartz veinlets 1-3 mm wide. Contacts of unit are sharp but are not deformed or faulted and surrounding units are only weakly sericitized. 72.90 - 73.00 Fault @ 20° tca: sericite + quartz; sharp, tight sericite slip @ 72.90 m with 2 cm buff-white quartz vein on down hole side of slip. 73.30 - 73.40 Fault @ 25° tca: sericite + quartz ± ankerite; 1-2 cm quartz + ankerite vein on sharp sericite slip. 	7787 7788 7789 7790 7791 7792 7793 7794 7795 7796 7797	68.60 69.10 70.00 71.00 72.00 72.80 73.60 74.30 75.00 76.00 77.00	69.10 70.00 71.00 72.00 73.60 74.30 75.00 76.00 77.00 78.00	0.50 0.90 1.00 1.00 0.80 0.80 0.70 0.70 1.00 1.00 1.00	Sericitized Lapilli Tuff. Sericitized Tuff with faulting and quartz veins.	0.01 0.02 0.01 0.02 0.02 0.01 0.01 0.01	0.01

HOLE: AK-90-25/92-25 Ext.

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INTE	RVAL	DESCRIPTION		, <u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>		SAN	APLE	AS	SAYS
FROM	то		No.	From	To	Length %Rec	%Py %QV %Ser	Au, g/t	Au.Check
		80.90 - 81.40 Quartz + chlorite vein with angular wall rock inclusions and very minor chalcopyrite.	7798 7799 7800 7801 7802 7803 7804 7805 7806 7806 7807 7808	78.00 79.00 80.00 80.50 81.50 82.00 83.00 84.00 84.60 85.10 86.00	79.00 80.00 80.50 81.50 82.00 83.00 84.00 84.60 85.10 86.00 86.50	1.00 1.00 0.50 1.00 0.50 1.00 1.00 0.60 0.50 0.90 0.50	Quartz + chlorite breccia vein.	0.01 0.02 0.02 0.02 0.01 NIL 0.01 0.04 NIL 0.01	0.01
86.30	94.10	HETEROLITHIC LAPILLI TUFF Massive to weakly foliated, light grey-green, with 10-20% angular, light brown to grey-green spotty, trachyte clasts, up to 3 cm (avg. 0.5 cm), with sericite alteration; matrix is dark grey-green, very fine grained ash tuff with minor spotty sericite; typically weakly magnetic; lower contact is very sharp @ 40° tca.	7809 7810 7811 7812 7813	86.50 87.50 88.50 89.50 90.00	87.50 88.50 89.50 90.00 91.00	1.00 1.00 1.00 0.50 1.00	Massive Lapilli Tuff.	0.01 NIL 0.02 NIL NIL	
94.10	102.65	ASH TUFF Massive to weakly bedded @ 50° tca; dark grey-green to purple where hematitic; very fine grained, strongly magnetic and cut by 1% late white irregular quartz veinlets; lower contact is sharp and irregular.	7814 7815 7816	100.00 101.00 102.00	101.00 102.00 102.65	1.00 1.00 0.65	Massive Ash Tuff.	NIL 0.01 NIL	NIL
102.65	104.50	 PYRITE QUARTZ BRECCIA ZONE 102.65 - 103.40 Fault zone @ 20° tca: sericite + chlorite + quartz; strongly foliated to schistose sericite + chlorite + quartz veinlets + laminated mudstone with some very minor, dark grey pyritic bands. 103.40 - 104.40 Well bedded, yellow-green mudstone with abundant 	7817 7818	102.65 103.40	103.40 103.90	0.75	Fault zone with quartz + minor pyrite. Laminated Mudstone.	0.25	
		micro-faulting which disrupts bedding @ 15° tca. 104.10 - 104.15 Brecciated, buff-white quartz vein, fragments up to 1 cm with 3-5% very fine grained pyrite within sericitized, interstitial groundmass of altered mudstone. 104.15 - 104.25 Very fine (<< 0.5 mm) pyritic veinlets and stringers and 2% disseminated pyrite in aphanitic, vellow-green	7819	103.90	104.40	0.50	Pyrite Zone, 3 - 5% pyrite in quartz breccia vein and Mudstone.	7.70	8.32
		mudstone bed. 104.40 - 104.50 Fault @ 40° tca: strong mud gouge and fault breccia rubble with weak ankeritic stain.	7820	104.40	104.90	0.50	Fault gouge + Siltstone.	0.12	

HOLE: AK-90-25/92-25 Ext.

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INTE	RVAL	DESCRIPTION				SAN	MPLE	45	SAVC
FROM	то		No.	From	То	Length %Rec	%Pv %OV %Ser	Au at	An Oberly
104.50	132.35	 SILTSTONE / MUDSTONE Very fine-grained, dark green siltstone with minor, yellow-green mudstone beds @ 20°-30° tca which are frequently disrupted and display convoluted bedding and flame structures; intercalated lapilli-tuff horizons up to 1 metre wide which display gradational contacts and frequently include siltstone clasts; these lapilli-tuff horizons are grey-green and contain 5% light grey to dark green, angular trachyte clasts up to 2-3 cm (avg. 0.5 cm). 106.00 - 114.80 0.5 to 1% 0.1-1 cm grey white irregular quartz carbonate veinlets and fracture fillings 114.80 - 115.85 Massive fine grained graywacke interbedded with 2% spotty sericite and <0.5% disseminated pyrite. 	No. 7821 7822 7823 7824 7825 7826 7827 7828 7829 7830 7831 7832 7833 7834 7835 7836 7837	From 104.90 105.50 106.00 107.00 108.00 109.00 111.00 112.00 113.00 114.00 115.30 116.00 117.00 118.00 119.00	105.50 106.00 107.00 108.00 110.00 111.00 112.00 114.00 114.80 115.30 116.00 117.00 118.00 119.00 120.00	Length % Rec 0.60 0.50 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	 %Py %QV %Ser Massive Siltstone. 1% quartz carbonate veins, trace pyrite at 105.85 m. Graywacke with 0.5% pyrite and minor quartz + chlorite veinlets. Massive to laminated Mudstone / Siltstone with minor intercalated Lapilli Tuff horizons. 	Au, g/t 0.02 0.15 0.02 0.01 0.02 0.01 0.02 0.01 NIL 0.01 NIL 0.01 NIL 0.01 0.01 0.01 0.01 0.01 0.01 0.01	0.01
132.35	142.90	 132.20 - 132.35 Fault @ 30° tca: sericite + quartz; 3 cm wide, barren white-buff quartz vein on a sharp sericitic slip. LAPILLI TUFF Massive grey-green, poorly sorted, with 5-10% angular, buff-brown to grey to dark green trachyte clasts, up to 4 cm (avg. 1 cm), in a fine grained ash matrix contains framework and interface of silver and the second second	7838 7839 7840	131.00 132.00	132.00 132.50 133.20	1.00 0.50 0.70	Siltstone at fault contact.	0.01 NIL NIL	
		 matrix, contains fragments and interbeds of silfstone up to 7 cm wide; weakly magnetic. 135.50 - 135.60 2-3% very finely disseminated pyrite in moderately silicified tuff. 	7841 7842 7843 7844	133.20 134.20 134.70 135.20	134.20 134.70 135.20 136.00	1.00 0.50 0.50 0.80		NIL 0.01 0.01 NIL	0.01

HOLE: AK-90-25/92-25 Ext.

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INTE	RVAL	DESCRIPTION				SAN	IPLE			AS	SSAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	Au, g/t	Au, Check
		 135.60 1 cm quartz ± albite (?) vein at contact of 7 cm wide mudstone horizon. 136.10 Fault @ 22° tca: sericite + quartz + gouge; strong, tight mud break with fragmented quartz veinlet 0.5 cm wide. 136.10 - 136.70 Siltstone with 30% quartz + sericite veins up to 4 cm wide with some very minor (<0.5%) pyrite. 	7845 7846 7847	136.00 136.70 137.50	136.70 137.50 138.50	0.70 0.80 1.00				0.01 NIL NIL	
142.90	149.25	 IAPILLI/ASH TUFF Hole re-entered at 142.90 m on August 12, 1992. Massive, medium grey-green, chloritic to sericitic heterolithic lapilli tuff interdigitated with very fine grained, grey-green ash tuffs. Non magnetic. 145.00 Fault slip @ 45° tca. Sericite + quartz + pyrite. 0.5 cm wide, white-grey quartz + sericite vein with fine, internal sericitic suturing with 2% fine grained pyrite on slips and fractures. Slip boundaries are blue-grey and smeared with sulphide (pyrite). 145.00 - 149.25 Lapilli/ash tuff displays an irregular, patchwork of light buff-brown alteration (sericitization) associated with a randomly oriented set of quartz + albite veins from 0.5 mm to 0.5 cm wide. Alteration occurs as halos adjacent to veins. Very minor disseminated pyrite evident in 	3925 3926 3927 3928 3929	143.00 144.00 144.50 145.10 145.60	144.00 144.50 145.10 145.60 146.10	1.00 0.50 0.60 0.50 0.50	Tr. Tr. 1-2	Tr. Tr. Tr. Tr. Tr.	Tr. Tr. 2-3 2-3 2-3	0.01 NIL 0.17 0.02 0.09	
		 145.90 - 146.10 Tuff contains 2-3% pyrite in an irregular patchy network. 149.10 - 149.25 Contact zone is moderately well foliated with tight sericite + chlorite slips @ 70-80° tca. Section is pervasively sericitized, bleached and contains 1-2% quartz + albite stringers and pods and trace disseminated pyrite. 	3930 3931 3932 3933 3934	146.10 147.00 148.00 148.50 149.10	147.00 148.00 148.50 149.10 149.60	0.90 1.00 0.50 0.60 0.50	Tr. Tr.	Tr. Tr. Tr. Tr. 2	2-3 2-3 Tr. Tr. 10-15	NIL 0.02 NIL 0.01 0.01	
149.25	183.30	GRAYWACKE/LAPILLI TUFF/MUDSTONE Massive to weakly foliated, chloritic graywacke intercalated with mudstone beds and lapilli tuff horizons. Mudstone beds and very irregular and range for 0.5-5 cm wide. Lapilli tuff horizons are up to 1 m wide, generally with gradational contacts and some sediment mixing of clasts. Bedding @ 40-50° tca.	3935 3936 3937 3938 3939 3940	149.60 150.50 151.00 151.50 152.00 153.00	150.50 151.00 151.50 152.00 153.00 154.00	0.90 0.50 0.50 0.50 1.00 1.00	Tr. Tr. Tr.	Tr. Tr. Tr. 1-2 Tr. 1-2	1-2 2-3 Tr. 2-3 2-3 3-5	0.02 0.08 0.02 0.01 0.02 NIL	

HOLE: AK-90-25/92-25 Ext.

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INTE	RVAL	DESCRIPTION				SAN	NPLE			 AS	SAYS
FROM	то		No.	From	То	Length %Rec	%Py	%QV	%Ser	 Au. g/t	Au.Check
183.30	198.50	 156.40 Tight, weak sericite slip @ 45° tca. 176.60 - 176.80 Fault @ 15° tca, 0.5 cm wide, quartz + albite vein, bounded by sharp, tight chloritic slips. GRAYWACKE Massive, fine grained, chloritic ± sericitic, medium to dark grey-green 	3941 3942	182.00 182.75	182.75 183.25	0.75 0.50		1-2 1-2	3-5 3-5	NIL NIL	
		 graywacke. 183.30 - 190.00 Weak to moderate "crack and seal" texture associated with narrow (hairline to 3 mm) quartz ± chlorite stringers at all angles. These stringers have sericitic alterations halos up to 1 cm from veinlet, giving unit an overall patchwork appearance. Section contains trace disseminated pyrite. 185.00 186.20 Computed appearance to 1.00 methods and the section of the section o	3943 3944 3945	183.25 184.00 184.50	184.00 184.50 185.00	0.75 0.50 0.50	Tr. Tr. Tr.	2-3 1-2 1-2	3-5 3-5 3-5	NIL NIL NIL	
		up to 0.5 cm wide, possibly primary.	3946 3947 3948 3949 3950 3951 3952	185.00 185.50 186.00 186.50 187.00 188.00 189.00	185.50 186.00 186.50 187.00 188.00 189.00 190.00	0.50 0.50 0.50 1.00 1.00 1.00	1 1-2 1-2 Tr. Tr. Tr. Tr. Tr.	1-2 1-2 1-2 1-2 1-2 1-2 1-2	3-5 3-5 3-5 3-5 3-5 3-5 3-5	NIL 0.01 NIL NIL 0.01 NIL NIL	
	198.50	E. O. H. Casing left in hole.	5752	137.00		1.00	11.	1-2	5-2	NIL	

HOLE: AK-91-30

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PROPERTY TOWNSHIP CLAIM No	Amalgamated Kirkland Teck I 500057 I 477419	DATE LOGGED LOGGED BY DBU LED BY	August 3, 1991 - August 7. Mark Masson Heath & Sherwood	, 1991	EASTING NORTHING	8598.7 10398.9	Depth	Method	Azimuth	Dip
STARTED COMPLETED	Aug 1/91 ; Aug 13/91 Aug 6/91 ; Aug 14/91	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake Warehouse B.M.C.I. Sperty Sun 1992		COLLAR SURVEY LENGTH UNITS CORE SIZE	Northland Technical 387.45 metres NQ	Note:	See table at for downhole	end of sumn surveys	ary log
PURPOSE	To test "102" structure									
COMMENTS	Hole extended from 321. "103" gold zone @ 107.0	70 to 387.45. 0 - 118.30, 11.3 m.	SIGNED BY	(W. Benham)						

	SUM	MARY LOG		ASSAY SUMMARY					
INTERVAL	DESCRIPTION	INTERVAL	DESCRIPTION	INTERVAL	LENGTH	AVERAGE			
From To		From To		From To	in metres	Au g/t			
0.00 6.50	OVERBURDEN	299.70 304.00	GRAYWACKE						
6.50 8.80	FAULT @ 10° TCA	304.00 322.15	GRAYWACKE/CONGLOMERATE	42.00 43.00	1.00	0.44			
	Sericite + chlorite + ankerite + quartz.		Bleached, sericitic.						
8.80 83.50	CONGLOMERATE	322.15 347.00	ASH TUFF	107.00 118.30	11.30	1.80			
	Chloritic		Bleached sericitic.	Including					
83.50 90.70	GRAYWACKE	347.00 352.00	ASH/LAPILLI TUFF	107.50 112.00	4.50	2.88			
90.70 100.50	CONGLOMERATE		Hematitic	107.50 109.00	1.50	4.88			
100.50 122.00	CONGLOMERATE	352.00 353.00	CONGLOMERATE	107.50 108.00	0.50	11.01			
	Weakly sericitic		Weakly sericitic.	110.50 112.00	1.50	3.71			
	107.60 - 107.90 Silicified zone with 0.5% pyrite.	353.00 359.90	ASH TUFF	112.00 118.30	6.30	1.15			
	117.95 - 118.25 Sericite + quartz + 1% pyrite.		Hematitic	117.90 118.30	0.40	15.12			
122.00 128.00	CONGLOMERATE ± SYENITE (?)	359.90 363.50	CONGLOMERATE						
	Hematized.	363.50 369.45	ASH/LAPILLI TUFF						
128.00 147.00	CONGLOMERATE		Hematitic						
	Chloritic	369.45 371.80	FAULT-SHEAR ZONE						
147.00 154.00	LAPILLI TUFF		Sheared mudstones and conglomerates.						
154.00 196.00	CONGLOMERATE	371.80 387.45	LAPILLI TUFF						
196.00 210.50	GRAYWACKE		Hematitic						
210.50 222.30	CONGLUMERATE CDANNA CKERAUDOTONE								
222.50 229.00	GRAIWACKE/MUDSIONE	207.45							
227.00 237.00	EATLER TOFF	387.45	Е. О. Н.						
237.00 237.70	TAULI ZUNE - UNLUKITE + SEKICITE								
231.10 299.10	LATILLITUFF								

HOLE: AK-91-30

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PROPERTY TOWNSHIP	Amalgamated Kirkland Teck	DATE LOGGED LOGGED BY	August 3, 1991 - August 7, 1991 Mark Masson	EASTING	8598.7	Depth	Method	Azimuth	Dip
CLAIM No. STARTED COMPLETED	L 500057, L 477419 Aug 1/91 ; Aug 13/91 Aug 6/91 ; Aug 14/91	DRILLED BY CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Heath & Sherwood Kirkland Lake Warehouse B.M.C.I. Sperry Sun 1992	LENGTH UNITS	330.2 Northland Technical 387.45 metres	Note:	See table surveys	elow for do	wnhole
PURPOSE	To test "102" structure			CORE SIZE	NQ				
COMMENTS	Hole extended from 321. "103" gold zone @ 107.0	70 to 387.45. 0 - 118.30, 11.3 m.	SIGNED BY (W. Benh	am)					

	SUMMARY LOG										A	SSAY SUMM	ARY
INTERVAL From To			DESCRI	PTION		INTERVAL From To	- 7	DESCRI	PTION		INTERVAL From To	LENGTH in metres	AVERAGE Au g/t
		Depth	Method	Azimuth	Dip		Depth	Method	Azimuth	Dip			
		Collar	ollar Compass 161 56 290.0 Acid 48 7.0 Acid 56 200.0 Acid 48										
		7.9	Acid		56		300.0	Sperry Sun		47			
		29.0	Acid		56		337.0	Acid		46			
		93.0	Acid		55		366.0	Acid		44			
		100.0	Sperry Sun	161	56								
		124.0	Acid		54								
		154.0	Acid		53								:
		185.0	Acid		52								
		200.0	Sperry Sun	161	54								
		215.0	Acid		50								
		246,0	Acid		49				·····				
									<u></u>				

HOLE: AK-91-31

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PROPERTY TOWNSHIP	Amalgamated Kirkland Teck	DATE LOGGED LOGGED BY	August 7, 1991 - August 13, 1991 Mark Masson	EASTING NORTHING	8190.1 10366.4	Depth	Method	Azimuth	Dip
STARTED COMPLETED	August 6, 1991 August 13, 1991	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake Warehouse B.M.C.I. Sperry Sun 1992	LEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	331.8 Northland Technical 409.75 metres NO	Note:	See table at for downhole	end of sumn surveys	ary log
PURPOSE	To test "102" structure		1.15						
COMMENTS	"103" gold zone @ 258.4 "102" gold zone @ 359.1	0 - 261.50, 3.10 m. 0 - 369.25, 10.15 m.	SIGNED BY (W. Benhar	n)					

	SUM	MARY LOG		A	ASSAY SUMMARY				
INTERVAL	DESCRIPTION	INTERVAL	DESCRIPTION	INTERVAL	LENGTH	AVERAGE			
From To		From To		From To	in metres	Au g/t			
0.00 3.65	OVERBURDEN	306.80 307.70	MUDSTONE						
3.65 41.00	LAPILLI TUFF	307.70 333.80	GRAYWACKE	237.10 239.10	2.00	0.27			
	Chloritic		Sericitic						
41.00 69.10	LAPILLI TUFF		316.05 - 316.40 Quartz + chlorite + pyrite vein	258.40 261.50	3.10	3.63			
09.10 /9.40			317.20 - 317.65 Quartz and quartz + chlorite =	including					
70.40 06.20	Sericitic + hematitic		pyrite	260.50 260.90	0.40	27.12			
96 20 112 00	LATILLI/ASH IUFF	333.80 339.50	TRACHYTIC FLOW						
60.50 115.00		339.50 362.00	GRAYWACKE Socialities	334.50 335.00	0.50	0.43			
113.00 127.60	GRAYWACKE/MUDSTONE/CONCLOMEDATE		Senerul $+$ chiorul $+$ pyrtic 348.60 340.20 Overta and events 1 ablevite	217.10 010.00					
127.60 230.00	GRAYWACKE		540.00 - 549.20 Quartz and quartz + chlorite 4	347.40 348.00	0.60	0.16			
230.00 246.20	CONGLOMERATE		$\frac{1}{35915} + \frac{35920}{25920} = 0$	250 60 250 10	0.50	0.14			
246.20 247.30	DIABASE DYKE		with VISIBLE GOLD	5 538.00 539.10	0.50	0.14			
247.30 256.90	CONGLOMERATE	362.00 368.40	CONGLOMERATE	350 10 364 25	5.15	0.70			
	Chloritic		Sericitic	including	5.15	9.70			
256.90 270.10	GRAYWACKE		362.00 - 362.20 5-7% guartz + albite veins, 1-2%	359.10 359.60	0.50	42 43			
	260.60 - 260.90 Quartz + pyrite + sericite vein.		quartz flooding with 1% pyrite	361.90 362.20	0.30	12.52			
270.10 273.20	LAPILLI TUFF		0.5% pyrite in matrix.	363.40 364.25	0.85	23.43			
273.20 277.20	ASH TUFF		363.40 - 364.25 Silicified, 50% quartz veins and	1					
277.20 282.40	GRAYWACKE/MUDSTONE/LAPILLI/ASH TUFF		quartz flooding, 0.5 -1% pyrite.	364.25 364.65	0.40	0.23			
282.40 284.10	MUDSTONE/SILTSTONE	368.40 369.65	SILTSTONE						
284.10 306.80	ASH TUFF	369.65 372.00	GRAYWACKE	366.20 367.00	0.80	0.22			
	Chloritic + hematitic.	372.00 373.20	CONGLOMERATE	1					
				1					

HOLE: AK-91-31

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TOWNSHIP CLAIM No.	Teck L 491662. L 491663	LOGGED BY DRILLED BY	Mark Masson Heath & Sherwood	18(13, 1991	EASTING NORTHING ELEVATION	8190.1 10366.4 221.9	Depth	Method	Azimuth	Dip	
STARTED COMPLETED	August 6, 1991 August 13, 1991	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake Wareho B.M.C.I. Sperry Sun 1992	Duse	LENGTH UNITS CORE SIZE	Northland Technical 409.75 metres NO	Note:	See table at for downhole	end of sumn surveys	ary log	
PURPOSE	To test "102" structure										
COMMENTS	"103" gold zone @ 258.40 "102" gold zone @ 359.10) - 261.50, 3.10 m.) - 369.25, 10.15 m.	SIGNED BY	(W. Benham)					1		

	SUM	MARY LOG		A	SSAY SUMM	IARY
INTERVAL From To	DESCRIPTION	INTERVAL From To	DESCRIPTION	INTERVAL From To	LENGTH in metres	AVERAGE Au g/t
373.20 375.15 375.15 377.00 377.00 379.30 379.30 382.40 382.40 389.30 389.30 395.60 395.60 409.75	MUDSTONE Sericitic and foliated. GRAYWACKE Sericitic and foliated. 376.45 - 377.00 Sheared, quartz + sericite + pyrite zone. MUDSTONE GRAYWACKE CONGLOMERATE MUDSTONE GRAYWACKE 398.60 - 399.40 Fault @ 40° tca, sericite + quartz + pyrite. 406.40 - 406.50 Fault @ 60° tca 406.75 - 406.80 Fault @ 65° tca E. O. H.			372.60 373.20 382.40 383.00 387.00 388.00	0.60 0.60 1.00	0.13 0.15 0.17

HOLE: AK-91-31

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TOWNSHIP	Teck	DATE LOGGED LOGGED BY DBU LED BY	August 7, 1991 - August 13, 19 Mark Masson	991 EASTING NORTHING	8190.1 10366.4	Depth	Method	Azimuth	Dip
STARTED COMPLETED	August 6, 1991 August 13, 1991	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake Warehouse B.M.C.I. Sperry Sun 1992	ELEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	331.8 Northland Technical 409.75 metres NQ	Note:	See table b downhole su	clow for all rveys	
PURPOSE	To test "102" structure								
COMMENTS	"103" gold zone @ 258.4 "102" gold zone @ 359.1	0 - 261.50, 3.10 m. 0 - 369.25, 10.15 m.	SIGNED BY (W	/. Benham)					

				SUM	MARY LOG						AS	SSAY SUMM	IARY
INTERVAL From To		DESCRI	PTION		INTERVAL From To		DESCRI	IPTION	·····	INTERN From	VAL To	LENGTH in metres	AVERAGE Au g/t
	Depth	Method	Azimuth	Dip		Depth	Method	Azimuth	Dip				
	Collar	Compass	161	65		244.0	Acid		58				
	8.0	Acid		65		275.0	Acid		57				
	30.5	Acid		64		300.0	Sperry Sun	155	60				
	61.0	Acid		63		305.0	Acid		56				
	91.0	Acid		62		338.0	Acid		55				
	100.0	Sperry Sun	158	63		350.0	Sperry Sun	150	57.5				
	122.0	Acid		61		366.0	Acid		54				
	152.0	Acid		60		396.0	Acid		53				
	183.0	Acid		60		400.0	Sperry Sun	149	55				
	200.0	Sperry Sun	157	62									
	215.0	Acid		59									
										1			

HOLE: AK-91-32

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TOWNSHIP	Amalgamated Kirkland Teck	DATE LOGGED LOGGED BY	August 15, 1991 - August 21, 1991 Mark Masson	EASTING NORTHING	8400.4 10032.0	Depth	Method	Azimuth	Dip
STARTED COMPLETED	August 15, 1991 August 20, 1991	DRILLED BY CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Heath & Sherwood Kirkland Lake Warehouse B.M.C.I. Tropari 1991; Sperry Sun 1992	ELEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	314.3 Northland Technical 390.80 metres NQ	Note:	See table at for downhole	end of sumn surveys	iary log
PURPOSE	To test "102" structure		NR						
COMMENTS	No anomalous assays		SIGNED BY (W. Benham)						

		SUMN	ARY LOG		AS	SAY SUMMARY
INTER	RVAL	DESCRIPTION	INTERVAL	DESCRIPTION	INTERVAL	LENGTH AVERAGE
From	То		From To		From To	in metres Au g/t
0.00	7.00	OVERBURDEN	179.50 221.10	ASH TUFF		
7.00	15.10	ASH TUFF	221.10 249.20	LAPILLI TUFF		
		Foliated @ 20° tca.	249.20 272.00	ASH TUFF		
15.10	17.40	CONGLOMERATE		269.70 - 270.00 Fault @ 40° tca.		
17.40	17.70	FAULT BRECCIA @ 35° TCA	272.00 279.50	LAPILLI TUFF		
17.70	30.20	ASH TUFF	279.50 298.10	ASH TUFF		
		Hematitic	298.10 307.00	GRAYWACKE/SILTSTONE		
		27.95 - 28.40 Fault @ 25° tca.		305.20 - 305.40 Fault @ 50° tca.		
		29.70 - 30.20 Quartz + chlorite + pyrite veins.	307.00 318.50	ASH/LAPILLI TUFF		
30.20	33.40	CONGLOMERATE	318.50 327.00	GRAYWACKE/SILTSTONE		
33.40	35.20	ASH TUFF	327.00 333.00	LAPILLI TUFF		
35.20	60.00	CONGLOMERATE/TUFF		Bleached		
		Foliated @ 5-25° tca to 43.0 m.	333.00 354.50	GRAYWACKE		
60.00	77.70	CONGLOMERATE		$336.60 - 337.40$ Qtz + chlorite breccia \pm pyrite.		
		Chloritic		$343.50 - 344.55$ Qtz + chlorite breccia \pm pyrite.		
77.70	92.20	ASH TUFF		$347.50 - 348.20$ Qtz + chlorite breccia \pm pyrite.		
		Hematitic		$350.60 - 351.70$ Qtz + chlorite breccia \pm pyrite.		
		82.70 - 83.40 Fault @ 15° tca.	354.50 361.10	GRAYWACKE/CONGLOMERATE		
92.20	106.60	LAPILLI TUFF		359.10 - 359.50 Fault @ 45° tca.		
		Chloritic, hematitic	361.10 390.80	GRAYWACKE		
106.60	107.70	FAULT ZONE @ 45° TCA				
107.70	119.10	ASH TUFF				
119.10	179.50	LAPILLI TUFF/CONGLOMERATE	390.80	Е. О. Н.		

HOLE: AK-91-32

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TOWNSHIP CLAIM No.	Teck L 491663	DATE LOGGED LOGGED BY DRILLED BY	August 15, 1991 - August 21, 1991 Mark Masson Heath & Sherwood	EASTING NORTHING ELEVATION	8400.4 10032.0 314 3	Depth	Method	Azimuth	Dip	
STARTED COMPLETED	August 15, 1991 August 20, 1991	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake Warehouse B.M.C.I. Tropari 1991; Sperry Sun 1992	COLLAR SURVEY LENGTH UNITS CORE SIZE	Northland Technical 390.80 metres NO	Note:	See table b downhole su	clow for all rveys		
PURPOSE	To test "102" structure									
COMMENTS	No anomalous assays		SIGNED BY (W. Benham)							

				SUM	MARY LOG					ASSAY SUMMARY				
INTERVAL From To	 	DESCRI	PTION		INTERVAL From To		DESCRI	IPTION		INTERVAL From To	LENGTH in metres	AVERAGE Au g/t		
	Depth	Method	Azimuth	Dip		Depth	Method	Azimuth	Dip					
	Collar	Compass	341	60		215.0	Acid		53					
	7.3	Acid		60		246.0	Acid		52					
	30.0	Acid		60		275.0	Acid		51					
	50.0	Sperry Sun	345	59		300.0	Sperry Sun	338	51					
	61.0	Acid		59		307.0	Acid		49					
	91.0	Acid		57		335.0	Acid		47					
	100.0	Sperry Sun	342	58		350.0	Sperry Sun	343	48					
	122.0	Acid		56		365.0	Acid		47					
	154.0	Acid		55		387.1	Tropari	337(?)	47					
	185.0	Acid		54			<u> </u>							
	200.0	Sperry Sun	339	55										
	 200.0 Sperry Sun 339 55					L								

HOLE: AK-91-33

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PROPERTY TOWNSHIP CLAIM No.	Amalgamated Kirkland Teck L 491650, L 491651	DATE LOGGED LOGGED BY DRILLED BY	August 22, 1991 - A Mark Masson Heath & Sherwood	August 29, 1991	EASTING NORTHING	7999.0 10370.5	Depth	Method	Azimuth	Dip
STARTED COMPLETED	August 21, 1991 August 28, 1991	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake War B.M.C.I. Tropari 1991; Speri	chouse y Sun 1992	COLLAR SURVEY LENGTH UNITS CORE SIZE	Northland Technical 454.75 metres	Note:	See table at for downhol	end of sumn surveys	ary log
PURPOSE	To test "102" structure			1.1R						
COMMENTS	"103" gold zone @ 275.5 "102" gold zone @ 378.8	0 - 276.10, 0.60 m. 0 - 379.25, 0.45 m.	SIGNED BY	(W. Benham)						

	SUM	MARY LOG		AS	SSAY SUMM	IARY
INTERVAL From To	DESCRIPTION	INTERVAL From To	DESCRIPTION	INTERVAL	LENGTH	AVERAGE
		TIOM TO	,	From To	in metres	Au g/t
0.00 2.13	OVERBURDEN		275.50 • 276.10 Shear zone @ 40° tos			
2.13 26.90	LAPILLI/ASH TUFF	282.90 337.70	ASH TUFF	275 50 276 10	0.60	0.10
	25.00 - 25.50 Fault @ 15-40° tca.		306.90 - 307.20 Fault zone @ 50° tca.	215.50 210.10	0.00	0.13
26.90 62.80	SILTSTONE/MUDSTONE	337.70 370.70	LAPILLI TUFF	378.80 379.25	0.45	016
62.00 220.10	54.80 - 55.10 Fault @ 30° tca.		340.50 - 350.00 Fractured, sericitic, bleached. 1-			0.10
02.80 228.10	120 70 120 00 Eauto © 550 cm		3% quartz + calcite and chlorite			
	139.70 - 139.90 Fault @ 55° tca.		veinlets @ 10-15° tca.			
	$140.90 - 147.30$ Fault @ 45° (ca.	370.70 389.10	LAPILLI TUFF			
	212.80 - 213.50 Shear zone @ 25º tea					
	226.50 - 226.90 Fault @ 60° tca.	389 10 308 00	$309.00 \cdot 309.10$ Fault @ 00° ica.			
	227.60 - 228.10 Fault @ 65° tca.	398.00 411.00	LATILLI TUFF/SILISIONE			
228.10 229.60	GRAYWACKE	411.00 414.90	SILTSTONE			
229.60 232.70	MUDSTONE	414.90 423.80	LAPILLI TUFF			
232.70 240.20	LAPILLI TUFF	423.80 432.30	SILTSTONE/MUDSTONE			
240.20 246.90	GRAYWACKE		427.40 - 429.00 Shear zone @ 45° tca.			
246.90 248.90	LAPILLI TUFF	432.30 454.75	GRAYWACKE			
248.90 255.90	MUDSTONE/SILTSTONE		442.90 Fault @ 30° tca.			
	251.25 - 251.35 Quartz + sericite + pyrite vein @					
255 00 282 00	/U" ICa.					
2000.70 202.70	1.2% quarte + chlorite veinlete @ 15 (5% too too	454.75	Е. О. Н.			
	pyrite.					

HOLE: AK-91-33

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TOWNSHIP CLAIM No.	Teck L 491650, L 491651	DATE LOGGED LOGGED BY DRILLED BY	August 22, 1991 - August 29, 1991 Mark Masson Heath & Sherwood	EASTING NORTHING ELEVATION	7999.0 10370.5 344.4	Depth	Method	Azimuth	Dip
STARTED COMPLETED	August 21, 1991 August 28, 1991	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake Warehouse B.M.C.I. Tropari 1991; Sperry Sun 1992	COLLAR SURVEY LENGTH UNITS CORE SIZE	Northland Technical 454.75 metres NO	Note:	See table I surveys	elow for do	wnhole
PURPOSE	To test "102" structure								
COMMENTS	"103" gold zone @ 275.5 "102" gold zone @ 378.8	0 - 276.10, 0.60 m. 0 - 379.25, 0.45 m.	SIGNED BY (W. Benham)					

				SUM	MARY LOG						ASSAY S	UMMA	RY	
INTERVAL From To		DESCRI	PTION		INTERVAL From To		DESCRI	PTION		INTERVA From To	L LENC o in metr	FTH res	AVI A	ERAGE Au g/t
	Depth	Method	Azimuth	Dip		Depth	Method	Azimuth	Dip	Depth	Method	Azimu	ith	Dip
	Collar	Compass	161	65		200.0	Sperry Sun	164	64.5	400.0	Sperry Sun	151		58
	3.0	Acid		65		215.0	Acid		60	450.0	Tropari	170(7)	59
	30.0	Acid		65		246.0	Acid		59	450.0	Sperry Sun	147		55
	48.0	Tropari	166	63		250.0	Sperry Sun	159	63.5				Т	
	50.0	Sperry Sun	165	66.5		277.0	Acid		60				1	
	61.0	Acid		64		300.0	Sperry Sun	157	62.5					
	93.0	Acid		63		305.0	Acid		59					
	100.0	Sperry Sun	164	66		335.0	Acid		60					
	124.0	Aciđ		63		368.0	Acid		58					
	152.0	Acid		63		396.0	Tropari	169(?)	57					
	185.0	Acid		62	· .	398.0	Acid		57			1		
	•													

HOLE: AK-91-35

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PROPERTY TOWNSHIP	Amalgamated Kirkland Teck	DATE LOGGED LOGGED BY	September 7, 1991 - September 12, 1991 Mark Masson	EASTING NORTHING	7599.6 10097 4	Danth	Mathod	Ardmuth	Dia
CLAIM No. STARTED COMPLETED	L 491182, L 491183 September 6, 1991 September 12, 1991	DRILLED BY CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Heath & Sherwood Kirkland Lake Warehouse B.M.C.I. Sperry Sun 1992	ELEVATION COLLAR SURVEY	337.3 Northland Technical 365.50	Note:	Method See table at	Azimuth end of sumn	Dip hary log
BUBBOOF	The Area #100# and #100# a			CORE SIZE	NQ		for downhold	e surveys	
PURPOSE	10 test "102" and "103" s	structures.	WB						
COMMENTS	"102" gold zone @ 223.0 "103" gold zone @ 344.0	0 - 226.00, 3.00 m. 5 - 347.50, 3.45 m.	SIGNED BY (W.'Benham)		•				

	SUM		AS	SSAY SUMM	ARY		
INTERVAL From To	DESCRIPTION	INTERVAL From To	DESCRIPTION	N	INTERVAL From To	LENGTH in metres	AVERAGE Au g/t
0.00 4.00 4.00 15.60 15.60 49.60	OVERBURDEN LAPILLI TUFF MUDSTONE/SILTSTONE		Weakly sericitic. 321.10 - 321.20 Sheared, seri trace pyrite.	icitic, 5-7% quartz,	223.00 226.00	3.00	0.13
49.60 65.70	30.60 - 42.00 Sericitic, foliated @ 40-55° tca. GRAYWACKE		325.90 - 326.20 Sheared @ 'veins, 1% pyr	70° tca. 3% quartz rite.	340.50 341.50	1.00	0.10
	Sericitic, trace pyrite, 1-2% quartz. 51.40 - 52.40 Fault breccia @ 15-30° tca.		336.95 - 337.10 Quartz + se pyrite vein @	ricite + chlorite + 75° tca.	344.05 347.50 including	3.45	3.11
65.70 86.60 86.60 132.50	MUDSTONE/SILTSTONE ASH TUFF 97.20 - 102.50 Sericitic 121.00 - 121.15 Fault @ 40° tca.	340.10 343.25	339.20 - 339.30 Quartz + set @ 75° tca. 340.10 Fault @ 40° (CONGLOMERATE/GRAYWAC)	ricite + pyrite vein tca. KE	344.05 344.60	0.55	18.88
132.50 159.60 159.60 180.00	ASH/LAPILLI TUFF LAPILLI TUFF	343.25 344.10 344.10 354.85	SYENITE CONGLOMERATE				
180.00 220.90	ASH/LAPILLI TUFF 206.00 - 209.50 Sericitic, trace pyrite, 2-3% chlorite breccia veinlets.		344.10 - 344.40 Blue grey, sil pyrite < 0.5° molybdenite.	licified zone. 8-10% % chalcopyrite and			
220.90 239.80	CONGLOMERATE Chloritic, foliated @ 50° tca.		344.40 - 345.40 1-2% pyrite c 347.50 - 348.50 Sericitic, 5% pyrite.	quartz veins, trace			
239.80 254.20 254.20 275.60 275.60 313.50	GRAYWACKE ASH TUFF LAPILLI TUFF	354.85 360.40 360.40 365.50	GRAYWACKE CONGLOMERATE				
313.50 340.10	GRAYWACKE	365.50	Е. О. Н.				

HOLE: AK-91-35

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PROPERTY TOWNSHIP CLAIM No.	Amalgamated Kirkland Teck L 491182, L 491183	DATE LOGGED LOGGED BY DRILLED BY	September 7, 1991 - September 12, 1991 Mark Masson Heath & Sherwood	EASTING NORTHING FLEVATION	7599.6 10097.4 227.2	Depth	Method	Azimuth	Dip
STARTED COMPLETED	September 6, 1991 September 12, 1991	aber 6, 1991 CORE LOCATION aber 12, 1991 DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake Warehouse B.M.C.I. Sperry Sun 1992	COLLAR SURVEY	Northland Technical 365.50 metres	Note:	See table I surveys	elow for do	wnhole
PURPOSE	To test "102" and "103" st	tructures.							
COMMENTS	"102" gold zone @ 223.00 "103" gold zone @ 344.05	0 - 226.00, 3.00 m. 5 - 347.50, 3.45 m.	SIGNED BY (W. Benham))					

	•				SUM	MARY LOG						AS	SAY SUMM	ARY
INTERVAL From To			DESCRI	PTION		INTERVAL From To		DESCRI	PTION		INTER From	VAL To	LENGTH in metres	AVERAGE Au g/t
		Depth	Method	Azimuth	Dip		Depth	Method	Azimuth	Dip				
		Collar	Compass	341	50		244.0	Acid		44				
		6.0	Acid		50		250.0	Sperry Sun	339	42				
		50.0	Sperry Sun	343	48		274.0	Acid		44				
		60.0	Acid		49		305.0	Acid		43				
		91.0	Acid		47		336.0	Acid		43				
-		100.0	Sperry Sun	341	46		350.0	Sperry Sun	340	41				
		122.0	Acid		47									
		150.0	Sperry Sun	338	44									
- - - -		152.0	Acid		46									
		183.0	Acid		45									
		214.0	Acid		45									

HOLE: AK-91-38

PAGE: 1 of 23

TOWNSHIP	Amalgamated Kirkland Teck	DATE LOGGED LOGGED BY	September 23, 1991 - October 4, 1991 Mark Masson	EASTING NORTHING	8189.1 10384.3	Depth	Method	Azimuth	Dip
CLAIM No. STARTED COMPLETED	L 491662, L 491663 September 22, 1991 October 3, 1991	DRILLED BY CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Heath & Sherwood Kirkland Lake Warehouse B.M.C.I. Tropari 1991; Sperry Sun 1992	ELEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	333.0 Northland Technical 619.10 metres NO	Note:	See table at for downhol	end of sumn surveys	ary log
PURPOSE	To test "102" and "103" a	structures.	11.15						
COMMENTS	"103" gold zone @ 387.3 "102" gold zone @ 546.9	5 - 390.10, 2.75 m 0 - 578.16, 31.26 m	SIGNED BY (W. Benham)						

	SUM	ASSAY SUMMARY				
INTERVAL	DESCRIPTION	INTERVAL	DESCRIPTION	INTERVAL	LENGTH	AVERAGE
From To		From To		From To	in metres	Au g/t
0.00 1.50	OVERBURDEN		432.80 - 432.90 Chlorite + quartz + pyrite			
1.50 33.50	ASH/LAPILLI TUFF		breccia vein.	387.35 390.10	2.75	0.41
33.50 55.40	LAPILLI TUFF	433.40 441.60	CONGLOMERATE/GRAYWACKE/MUDSTONE	including		
55.40 84.40	LAPILLI TUFF	441.60 451.80	LAPILLI TUFF	389.50 390.10	0.60	1.14
	Monolithic		Sericitic			
84.40 112.70	LAPILLI TUFF/SILTSTONE	451.80 459.30	ASH TUFF			
112.70 135.55	LAPILLI TUFF		Hematitic	546.90 552.00	5.10	1.97
135.55 144.00	LAPILLI TUFF/CONGLOMERATE	459.30 469.50	LAPILLI TUFF	including		
144.00 241.50	GRAYWACKE		Sericitic	546.90 547.35	0.45	8.18
241.50 261.90	CONGLOMERATE	469.50 545.00	LAPILLI TUFF			
	Foliated @ 30° tca.		Zones of hematite, sericite and chlorite alteration.			
261.90 299.40	LAPILLI TUFF	545.00 560.10	LAPILLI TUFF	559.60 560.60	1.00	0.33
299.40 320.90	GRAYWACKE		Sericitic, foliated @ 35-40° tca.			
320.90 357.70	CONGLOMERATE		546.95 - 547.30 Sericite + pyrite + quartz vein @	566.50 567.00	0.50	0.29
357.70 369.05	LAPILLI TUFF		30-40° tca.			
369.05 398.90	CONGLOMERATE		547.80 - 548.37 Sericite + pyrite + quartz vein @	568.80 573.50	4.70	0.20
	381.50 - 390.00 Foliated @ 30° tca, sericite.		30° tca.		ļ	
1	389.70 - 390.00 Fault @ 55-60° tca, 25% quartz,		559.20 - 559.55 sericite + pyrite + quartz vein @			
	1% pyrite.		35° tca.	577.60 578.60	1.00	2.66
398.90 420.30	SILTSTONE/MUDSTONE	560.10 564.10	CONGLOMERATE/GRAYWACKE	including		
420.30 427.90	CONGLOMERATE		Sericitic	578.10 578.60	0.50	4.55
427.90 433.40	GRAYWACKE	564.10 583.10	LAPILLI TUFF			
	431.30 1 cm quartz + pyrite vein.		Sericitic, foliated @ 30° tca.			

HOLE: AK-91-38

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PAGE: 2 of 23

TOWNSHIP	Amaigamated Kirkland Teck	DATE LOGGED LOGGED BY	September 23, 1991 - October 4, 1991 Mark Masson	EASTING NORTHING	8189.1 10384.3	Depth	Method	Azimuth	Dip
CLAIM No. STARTED COMPLETED	L 491662, L 491663 September 22, 1991 October 3, 1991	DRILLED BY CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Heath & Sherwood Kirkland Lake Warehouse B.M.C.I. Tropari 1991; Sperry Sun 1992	ELEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	333.0 EY Northland Technical 619.10 metres NQ	Note:	See table at for downhole	end of sumn surveys	ary log
PURPOSE	To test "102" and "103" s	tructures.							
COMMENTS	"103" gold zone @ 387.3 "102" gold zone @ 546.9	5 - 390.10, 2.75 m 0 - 578.16, 31.26 m	SIGNED BY (W. Benham)						

	SUM	MARY LOG		AS	SSAY SUMM	IARY
INTERVAL From To	DESCRIPTION	INTERVAL From To	DESCRIPTION	INTERVAL From To	LENGTH in metres	AVERAGE Au g/t
583.10 619.10 619.10	 564.10 - 564.40 0.5% pyrite 566.70 - 566.80 Foliated tuff with 1% pyrite and 2 cm quartz + albite vein @ 30° tca with 2% pyrite and trace galena. 571.15 - 571.25 Sericite + pyrite + quartz vein @ 30° tca. 573.15 - 573.40 Fault zone @ 35-50° tca 1-2% pyrite, 1-2% quartz veins. 574.75 1 cm quartz + pyrite vein @ 45° tca. 577.70 - 578.55 Sericite + quartz + pyrite zone @ 35° tca. LAPILLI TUFF Hematitic E. O. H. 			579.10 579.60 581.00 581.50	0.50	0.13 0.23

HOLE: AK-91-38

PAGE: 3 of 23

PROPERTY TOWNSHIP CLAIM No.	Amalgamated Kirkland Teck L 491662, L 491663	DATE LOGGED LOGGED BY DRILLED BY	September 23, 1991 - October 4, 1991 Mark Masson Heath & Sherwood	EASTING NORTHING ELEVATION COLLAR SURVEY LENGTH UNITS CORE SIZE	8189.1 10384.3 333.0 Northland Technical 619.10 metres NO	Depth	Method	Azimuth	Dip
STARTED COMPLETED	September 22, 1991 October 3, 1991	CORE LOCATION DOWNHOLE SURVEYOR SURVEY INSTRUMENT	Kirkland Lake Warehouse B.M.C.I. Tropari 1991; Sperry Sun 1992			Note:	See table b surveys	clow for dov	nhole
PURPOSE	To test "102" and "103" s	tructures.							
COMMENTS	"103" gold zone @ 387.3: "102" gold zone @ 546.94	5 - 390.10, 2.75 m) - 578.16, 31.26 m	SIGNED BY (W. Benham)						

				SUM	MARY LOG					ASSAY SUMMARY				
INTERVAL From To	<u> </u>	DESCRI	PTION		INTERVAL From To		DESCRI	IPTION		INTERVA From To	L LENG in metr	iTH res	AVERAGE Au g/t	
	Depth	Method	Azimuth	Dip		Depth	Method	Azimuth	Dip	Depth	Method	Azimuti	1 Dip	
	Collar	Compass	161	74		213.0	Acid		71	455.0	Acid		66	
	5.0	Acid	ļ	74		243.0	Acid	4	69	488.0	Acid		64	
	30.0	Acid		74		275.0	Tropari	160	69	500.0	Sperry Sun	144	64	
	60.0	Acid		74		275.0	Acid		69	518.0	Acid		63	
	90.0	Acid		73		300.0	Sperry Sun	147	70.5	548.0	Acid		61	
	100.0	Sperry Sun	157	75		305.0	Acid		69	580.0	Acid		60	
	100.0	Tropari	160	72		335.0	Acid		69	600.0	Sperry Sun	147	60	
	122.0	Acid		73		365.0	Acid		68	610.0	Tropari	160	60	
	150.0	Acid		72		400.0	Acid		67					
	183.0	Acid		72		425.0	Acid		66					
	200.0	Sperry Sun	152	73		450.0	Sperry Sun	144	67					
	:			-								<u></u>		

Kirkland Lake Project

APPENDIX II

ASSAY CERTIFICATES

Battle Mountain (Canada) Inc.

November, 1992



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Swastika Laboratories

A Division of Assayers Corporation Ltd.

Assaying - Consulting - Representation

Assay Certificate

Company: BATTLE MOUNTAIN CANADA INC Project: 75-JV-28 Attn: WAYNE BENHAM

Date: FEB-05-92

We hereby certify the following Assay of 30 CORE samples submitted JAN-30-92 by MARK MASSON.

Sample	Au	Au check	
Number	g/tonne	g/tonne	•
2055	0.01		
2056	0.01		
2057	0.01		
2058	0.01		
2059	0.01	Ni I	
2060	0.01		
2061	Nil		
2062	0.01		
2063	0.01		
2064	0.01		
2065	0.01		
2066	0.01		
2067	0.01		
2068	0.01		
2069	0.01		
2070	Nil		
2071	0.01		
2072	0.01		
2073	Nil		
2074	0.01		
2075	0.01		
2076	0.01		
2077	Nil		
2078	0.01		
2079	0.01		
2080	0.01		
2081	0.01		
2082	0.01		
2083	0.01		
2084	0.01	0.01	
Au was deterr	nined using 1 AT fusions		

Certified by Longe Hardner

P.O. Box 10, Swastika, Ontario P0K 1T0 Telephone (705) 642-3244 FAX (705) 642-3300



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Page 1 of 2

2W-0105-RA1

Date: FEB-10-92

Assay Certificate

Company: BATTLE MOUNTAIN CANADA INC Project: 75-JV-28 Attn: WAYNE BENHAM

We hereby certify the following Assay of 51 CORE samples submitted FEB-03-92 by MARK MASSON.

Sample	Au	Au check	
Number	g/tonne	g/tonne	
2085	0.01		
2085	0.01		
2087	nil		
2088	0.01		
2089	0.01		
2090	0.01		
2091	0.02		
2092	0.01		
2093	0.01		
2094	0.01		
2095	nil		
2096	nil		
2097	0.01		
2098	0.01	0.02	
2099	0.01		
2100	0.01		
2101	0.01		
2102	0.02		
2103	0.01		
2104	nil		
2105	0.01		
2106	nil		
2107	0.01		
2108	0.01		
2109	0.02		
2110	0.01		
2111	0.01		
2112	0.02	0.02	
2113	0.01		
2114	0.01		
Au was determi	ined using 1 AT fusio	ons	A
	-		

J. Jehn Certified by_

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Page 2 of 2

2W-0105-RA1

Assay Certificate

Date: FEB-10-92

Company: BATTLE MOUNTAIN CANADA INC Project: 75-JV-28 Attn: WAYNE BENHAM

We hereby certify the following Assay of 51 CORE samples submitted FEB-03-92 by MARK MASSON.

Sample	Au	Au check	
Number	g/tonne	g/tonne	
2115	nil		
2116	0.01	nil	
2117	nil		
2118	0.01		
2119	0.01		
2120	nil		
2121	0.01		
2122	0.01		
2123	0.03		
2124	0.02	0.02	
2125	0.01		
2126	0.02		
2127	0.02		
2128	0.01		
2129	0.01		
2130	0.01		
2131	0.01		
2132	0.01		
2133	0.06		
2134	0.02		
2135	0.01		

Au was determined using 1 AT fusions

Certified by

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Page 1 of 2

Assay Certificate

2W-0107-RA1

Date: FEB-11-92

Company:BATTLE MOUNTAIN CANADA INCProject:75-JV-28Attn:WAYNE BENHAM

We hereby certify the following Assay of 45 CORE samples submitted FEB-04-92 by MARK MASSON.

Sample	Au	Au check	
Number	g/tonne	g/tonne	
2136	0.01		
2137	0.01		
2138	0.01		
2139	0.01		
2140	Ni l	Ni l	
2141	0.01		
2142	0.01		
2143	0.01		
2144	0.01		
2145	Nil		· · · · · · · · · · · · · · · · · · ·
2146	0.01		
2147	0.01		
2148	0.19		
2149	0.08		
2150	0.20		
2151	Nil		
2152	0.01		
2153	0.02		
2154	0.03		
2155	0.04	0.04	
2156	0.03		
2157	0.01		
2158	Ni l		
2159	0.01		
2160	0.01		
2161	0.01		
2162	0.02		
2163	0.03		
2164	0.01		
2165	0.01	0.01	
Au was determin	ned using 1 AT fusion	s	

Certified by Donna Sandner

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Page 2 of 2

2W-0107-RA1

Assay Certificate

Date: FEB-11-92

Company: BATTLE MOUNTAIN CANADA INC Project: 75-JV-28 Attn: WAYNE BENHAM

We hereby certify the following Assay of 45 CORE samples submitted FEB-04-92 by MARK MASSON.

Sample	Au	Au check
Number	g/tonne	g/tonne
2166	0.01	
2167	0.03	
2168	0.11	
2169	0.07	
2170	0.02	
2171	0.05	
2172	0.03	
2173	0.03	
2174	0.08	
2175	0.02	0.03
2176	0.04	
2177	0.01	
2178	0.01	
2179	Ni 1	
2180	0.01	

Au was determined using 1 AT fusions

Certified by Donna Handner

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Assay Certificate

Date: FEB-12-92

BATTLE MOUNTAIN CANADA INC Company: 75-JV-28 Project: WAYNE BENHAM Attn:

We hereby certify the following Assay of 51 CORE samples submitted FEB-05-92 by MARK MASSON.

Sample	Au	Au check	Au	Au	check	
Number	g/tonne	g/tonne	ppb		ppb	
2181	0.03					
2182	0.01					
2183	0.01					
2184	0.01					
2185	0.01					
2186	0.01					
2187	0.01					· · ·
2188	0.01					
2189	0.01					
2190	0.01	0.01				
2191	Nil					
2192	Nil					
2193	0.03					
2194	0.39					
2195	0.03					
2196	0.02					
2197	0.05					
2198	0.01					
2199	Nil					
2200	0.01					
2201	Nil					
2202	0.02					
2203	0.01					
2204	0.02	0.01				
2205	0.01					
2206	0.02					
2207	0.02					
2208	0.05					
2209	0.01					
2210	0.02					
Au was determined	Lucing 1 AT fusion					

Au was determined using 1 AT fusions

certified by Donna Handrer

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Page 2 of 2

2W-0114-RA1

Assay Certificate

Date: FEB-12-92

Company: BATTLE MOUNTAIN CANADA INC Project: 75-JV-28 Attn; WAYNE BENHAM

We hereby certify the following Assay of 51 CORE samples submitted FEB-05-92 by MARK MASSON.

Sample		Au	Au check	Au	Au	check	
Number		g/tonne	g/tonne	ppb		ppb	
2211		0.04					
2212		0.02					
2213		0.17	0.16				
2214		0.03					
2215		0.13					
2216		0.06					
2217		0.15					
2218		0.30					
2219		0.88					
2220		0.15					تن ہے کے تم بنا جا کے تیز بند بند کے بند نیز جن کے سے تم بنا ہو کے نیز کا تم کے بند کا ہو
2221	VG			63703		64115	
2222	VG			137418		136870	
2223				11760			
2224		0.37					
2225		0.27					
2226		0.34					
2227		0.49					
2228		0.52					
2229		0.40					
2230		0.88					
2231		0.90					

Au was determined using 1 AT fusions

Certified by Donna of anchinen

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Assay Certificate

2W-0122-RA1

Date: FEB-14-92

Company:BATTLE MOUNTAIN CANADA INCProject:75-JV-28Attn:WAYNE BENHAM

We hereby certify the following Assay of 38 CORE samples submitted FEB-06-92 by MARK MASSON.

Sample	Au	Au check	Au 2nd	
Number	g/tonne	g/tonne	g/tonne	
2232	1.41			
2233	0.45			
2234	0.69			
2235	0.27			
2236	2.47			
2237	2.43	2.23		
2238	1.20			
2239	0.51			
2240	3.22			
2241	15.77	15.50	15.70	
2242	2.57			
2243	1.85			
2244	7.06			
2245	9.84	10.77		
2246	1.61			
2247	2.81			
2248	0.27			
2249 ~	1.85			
2250	0.41			
2251	0.38			
2252	9.67			
2253	8.81			
2254	1.47			
2255	14.02	13.85	13.20	
2256	3.91			
2257	4.18			
2258	3.67	3.77		
2259	0.55			
2260	0.48			
2261	0.62			

Au was determined using 1 AT fusions

Certified by Donna Handner

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Page 2 of 2

2W-0122-RA1

Assay Certificate

Date: FEB-14-92

Company:BATTLE MOUNTAIN CANADA INCProject:75-JV-28Attn:WAYNE BENHAM

We hereby certify the following Assay of 38 CORE samples submitted FEB-06-92 by MARK MASSON.

Sample Number	Au g/tonne	Au check g/tonne	Au 2nd g/tonne	
2262	1.92			496,0 - 487. 498,0 - 497.0
2263	1.65			<i>YYYYY</i>
2264 2265	0.55			
2266	0.27			
2267	0.10			
2268	0.10			101- 402.0
2269	0.07			471 17

Au was determined using 1 AT fusions

certified by Donna Standing

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S	Swa	.stika	Lab Assayers Corp	oratorie	S	
Establis	hed 1928 Ass	saying - Con	sulting - F	Representation		
					Page 1 of 2	
Ass	av <u>Certificate</u>				2W-0169-RA1	
Company: Project: Attn:	BATTLE MOUNTAIN C 75JV28 WAYNE BENHAM	ANADA INC			Date: FEB-18-92	
We herel submitte	by <i>certif</i> y the following Assa d FEB-10-92 by MARK MA	y of 35 CORE ASSON.	E samples	13 RECEIVED	FEB 2 4 1992	
Sample	Au	Au check				
Number	g/tonne	grionic				
2270	0.07					
2271	0.02					
2272	0.02	·				
2273	0.01	0.01				
2274	0.02					
2275	0.02					
2276	0.01					
2277	0.01					
2278	0.03					-
2279						
2280	0.02					
2281	0.01					
2282	0.01					
2283	0.03					
2204	0.01					
2285	0.01					
2286	0.01	0.02				
2281	0.02	0.02				2
2200	0.03					
2207						

Au was determined using 1 AT fusions

2290

2291

2292

2293

2294

2295

2296

2297

2298

2299

0.03

0.02

0.02

0.03

0.03

0.02

0.03

0.03

0.01

0.02

Certified by Donna Handner

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0.01



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Assay Certificate

2W-0169-RA1

Date: FEB-18-92

Company: BATTLE MOUNTAIN CANADA INC Project: 75JV28 Attn: WAYNE BENHAM

We hereby certify the following Assay of 35 CORE samples submitted FEB-10-92 by MARK MASSON.

Sample Number g/	Au Au check tonne g/tonne	
2300 2301 2302 2303 2304	0.01 0.03 0.01 0.07 0.03	

Au was determined using 1 AT fusions

Certified by Donner Handner

P.O. Box 10, Swastika, Ontario P0K 1T0 Telephone (705) 642-3244. FAX (705) 642-3300



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Assay Certificate

2W-0161-RA1

Date: FEB-20-92

Company:BATTLE MOUNTAIN CANADA INCProject:75JV28Attn:WAYNE BENHAM

We hereby certify the following Assay of 18 CORE samples submitted FEB-13-92 by MARK MASSON.

Sample	Au	Au check	
Number	g/tonne	g/tonne	
2305	0.01		
2306	0.01		
2307	0.03		
2308	0.02	0.02	
2309	0.01		
2310	0.01		
2311	0.01		
2312	0.01		
2313	0.01		
2314	0.02		
2315	Nil		
2316	0.01		
2317	0.03		
2318	0.01		
2319	0.01	0.01	
2320	0.01		
2321	0.01		
2322	0.01		

Au was determined using 1 AT fusions

Certified by Landre Handre

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Assay Certificate

2W-0179-RA1

Date: FEB-24-92

Company: BATTLE MOUNTAIN CANADA INC Project: 75-JV-28 Attn: WAYNE BENHAM

We hereby certify the following Assay of 14 CORE samples submitted FEB-17-92 by MARK MASSON.

Sample Number	Au g/tonne	Au check g/tonne	
11905	Nil		
11906	0.01		
11907	0.01		
11908	0.01		
11909	0.02		
11910	0.02		
11911	0.02		
11912	0.02		
11913	0.09	0.09	
11914	0.03		
11915	0.02		
11916	0.03		
11917	0.02		
11918	0.02		

Au was determined using 1 AT fusions

Certified by Donna C Hardner

P.O. Box 10, Swastika, Ontario P0K 1T0 Telephone (705)642-3244 FAX (705)642-3300



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Assaying - Consulting - Representation

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2W-0185-RA1

Assay Certificate

Date: FEB-28-92

Company:	BATTLE MOUNTAIN CANADA INC
Project:	75-JV-28
Attn:	WAYNE BENHAM

RECEIVED MIR 1 6 1992

We hereby certify the following Assay of 52 CORE samples submitted FEB-17-92 by MARK MASSON.

Sample	Au	Au check	
Number	g/tonne	g/tonne	
2323	0.02		
2323	0.02		
2325	0.03		1
2325	0.03	0.02	
2327	0.01		
2328	0.02		
2329	0.02		
2330	0.01		
2331	0.02		
2332	0.02		
2333	0.01		
2334	0.01		
2335	0.02		
2336	0.02		
2337	0.02		
2338	0.02		
2339	0.02		
2340	0.02		
2341	0.03	0.03	
2342	0.02		
2343	0.02		
2344	0.02		
2345	0.01		
2346	0.01		
2347	0.01		
2348	0.01	• • •	
2349	0.01	0.02	
2350	0.01		
2351	0.01		
2352	0.01		
Au was determi	ined using 1 AT fusio	ons	

Certified by Jonna Handner

P.O. Box 10, Swastika, Ontario P0K 1T0 Telephone (705) 642-3244, FAX (705) 642-3300



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Assaying - Consulting - Representation

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Assay Certificate

2W-0185-RA1

Date: FEB-28-92

Company: BATTLE MOUNTAIN CANADA INC

Project: Attn: 75-JV-28 WAYNE BENHAM

We hereby certify the following Assay of 52 CORE samples submitted FEB-17-92 by MARK MASSON.

Sample	Au	Au check	
Number	g/tonne		
2353	0.01		
2354	Nil		
2355	Nil		
2356	0.01		
2357	0.01		
2358	0.01		
2359	0.01		
2360	0.02		
2361	0.02		
2362	0.04		
2363	0.02		
2364	0.02		
2365	0.02	0.04	
2366	0.02		
2367	0.02		
2260	0.01		
2300	0 01		
2309	0.01		
2370	0.02		
2371	0.02		
2312	0.102		
2373	0.01		
2374	0.01		

Au was determined using 1 AT fusions

Certified by Donna Handner

P.O. Box 10, Swastika, Ontario P0K 1T0 Telephone (705) 642-3244 FAX (705) 642-3300



Assay Certificate

Swastika Laboratories

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Assaying - Consulting - Representation

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2W-0214-RA1

Date: MAR-05-92

Company:BATTLE MOUNTAIN CANADA INCProject:75-JV-28Attn:WAYNE BENHAM

RECEIVED MAR 1 6 1992

We hereby certify the following Assay of 43 CORE samples submitted FEB-24-92 by MARK MASSON.

Sample	Au	Au check	Au 2nd				
Number	g/tonne	g/tonne	g/tonne				
2375	Nil						
2376	Ni l						
2377	Nil						
2378	Ni l						
2379	Nil						
2380	Nil						
2381	0.01						
2382	0.01						
2383	0.01						
2384	0.01						
2385	0.06						
2386	8.57	8.74	10.29				
2387	0.05						
2388	0.01						
2389	0.01						
2390	0.02						
2391	0.01						
2392	0.01						
2393	0.01						
2394	Ni l						
2395	Ni l						
2396	Ni l						
2397	0.02						
2398	0.02						
2399	0.01						
2400	0.01						
2401	0.01						
2402	0.01	0.01					
2403	0.01						
2404	0.01						
Au was determined using 1 AT fusions							

Certified by Donna Handmen

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Assaying - Consulting - Representation

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Assay Certificate

2W-0214-RA1

Date: MAR-05-92

Company:BATTLE MOUNTAIN CANADA INCProject:75-JV-28Attn:WAYNE BENHAM

We hereby certify the following Assay of 43 CORE samples submitted FEB-24-92 by MARK MASSON.

Sample Number	Au g/tonne	Au check g/tonne	Au 2nd g/tonne	 	 	
2405 2406 2407	Ni l Ni l Ni l					
2408 2409	N11 0.02			 	 	
2410 2411 2412 2413 2414	0.01 0.01 Nil Nil 0.01	Ni l				
2415 2416 2417	Ni 1 Ni 1 0.01				·	

Au was determined using 1 AT fusions

Certified by Donna Handnan



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Assaying - Consulting - Representation

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Assay Certificate

2W-0215-RA1

BATTLE MOUNTAIN CANADA INC Company: 75JV28 Project: WAYNE BENHAM Attn:

Date: MAR-05-92

RECEIVED MAR 1 6 1992

We hereby certify the following Assay of 34 CORE samples submitted FEB-26-92 by MARK MASSON.

Sample	Au	Au check	
Number	g/tonne	g/tonne	
2418	Nil		
2410	Nil		
2412	0.01		
2421	Ni l	Ni l	
2422	Ni l		
2423	Ni l		
2424	0.01		
2425	0.02		
2426	0.04		
2427	0.04		
2428	0.02		
2429	0.01		
2430	0.01		
2431	0.01		
2432	0.03		
2433	0.01		
2434	0.01		
2435	0.01		
2436	0.01	0.01	
2437	0.02		
2438	0.01		
2439	0.01		
2440	0.01		
2441	0.01		
2442	0.01		
2443	Nil		
2444	0.01		
2445	0.02		
2446	0.01		
2447	0.01		• • • • • • • • • • • • • • • • • • • •
Au was determ	nined using 1 AT fusio	ns	

certified by Jonna Handner



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Assaying - Consulting - Representation

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2W-0215-RA1

Assay Certificate

Date: MAR-05-92

Company:**BATTLE MOUNTAIN CANADA INC**Project:75JV28Attn:WAYNE BENHAM

We hereby certify the following Assay of 34 CORE samples submitted FEB-26-92 by MARK MASSON.

Sample	Au	Au check	
Number	g/tonne	g/tonne	
2448 2449 2450 2459	0.01 0.01 Ni I 0.01	0.01	

Au was determined using 1 AT fusions

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Assaying - Consulting - Representation

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Assay Certificate

2W-0231-RA1

Date: MAR-10-92

Company: BATTLE MOUNTAIN CANADA INC

Project: Attn: 75-JV-28 WAYNE BENHAM

We hereby certify the following Assay of 80 CORE samples submitted MAR-03-92 by MARK MASSON.

Sample	Au	Au check	
Number	g/tonne	g/tonne	
2460	0.01	0.04	
2461	0.01		
2462	0.01		
2463	Nil		
2464	0.01		
2465	Nil		
2466	Nil		
2467	0.01		
2468	Nil		
2469	0.01		
2470	0.01		
2471	Nil		
2472	0.02		
2473	Nil		
2474	0.01		
2475	Nil		
2476	Nil		
2477	0.04		
2478	0.01	0.01	
2479	Nil		
2480	0.01		
2481	0.01		
2482	0.01		
2483	0.01		
2484	0.01		
2485	0.01		
2486	Nil		
2487	Nil		
2488	Nil		
2489	Nil		
Au was dete	rmined using 1 AT fusio	ons	

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Assay Certificate

2W-0231-RA1

Date: MAR-10-92

Company:BATTLE MOUNTAIN CANADA INCProject:75-JV-28Attn:WAYNE BENHAM

We hereby certify the following Assay of 80 CORE samples submitted MAR-03-92 by MARK MASSON.

Sample	Au	Au check	
Number	g/tonne	g/tonne	
2490	0.01		
2491	0.01		
2492	0.01		
2493	0.01	0.01	
2494	0.01		
2495	Nil		
2496	0.01		
2497	Nil		
2498	Nil		
2499	0.01		
2500	0.01		
3001	Nil		
3002	0.08		
3003	0.01		
3004	0.01		
3005	Nil		
3006	0.01		
3007	Nil		
3008	0.01		
3009	0.01		
3010	0.01		· · · · · · · · · · · · · · · · · · ·
3011	0.01		
3012	0.01		
3013	0.02		
3014	0.02		
3015	0.01	0.01	
3016	0.01		
3017	Nil		
3018	Nil		
3019	0.01		
Au was dete	ermined using 1 AT fusio	ns	

Certified by Donna Handner



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Assaying - Consulting - Representation

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Assay Certificate

2W-0231-RA1

Date: MAR-10-92

Company:BATTLE MOUNTAIN CANADA INCProject:75-JV-28Attn:WAYNE BENHAM

We hereby certify the following Assay of 80 CORE samples submitted MAR-03-92 by MARK MASSON.

Sample	Au	Au check	
Number	g/tonne	g/tonne	
3020	Nil		
3021	0.02		
3022	0.03	0.01	
3023	0.01		
3024	0.01		
3025	0.01		
3026	0.05		
3027	0.01		
3028	Nil		
3029	0.01		
3030	0.01		
3031	0.01		
3032	0.01		
3033	0.01		
3034	0.01		
3035	0.01		
3036	0.01		
3037	0.01		
3038	0.01	0.01	
3039	0.09		

Au was determined using 1 AT fusions

certified by Donna Handner



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Assay Certificate

2W-0235-RA1

Date: MAR-11-92

Company:BATTLE MOUNTAIN CANADA INCProject:75-JV-28Attn:WAYNE BENHAM

We hereby certify the following Assay of 14 CORE samples submitted MAR-04-92 by MARK MASSON.

Sample	Au	Au check	
Number	g/tonne	g/tonne	
3040	0.01		
3041	0.10	0.10	
3042	0.01		
3043	0.01		
3044	Ni l		
3045	Nil		
3046	Ni l		
3047	0.11		
3048	0.01	0.01	
3049	0.01		
3050	0.02		
3051	0.01		
3052	0.03		
3053	0.01		

Au was determined using 1 AT fusions

Certified by Donna Handman



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Assay Certificate

2W-0260-RA1

Date: MAR-17-92

Company: BATTLE MOUNTAIN CANADA INC Project: 75-IV-28

Project: Attn: 75-JV-28 WAYNE BENHAM

We hereby certify the following Assay of 42 CORE samples submitted MAR-11-92 by MARK MASSON.

Sample	Au	Au check	
Number	g/tonne	g/tonne	
3054	0.01		
3055	0.01		
3056	0.02		
3057	0.02	0.01	
3058	0.01		
3059	Nil		
3060	Ni l		
3061	Nil		
3062	Nil		
3063	Nil		
3064	0.01		
3065	0.01		
3066	Nil		
3067	0.01		
3068	Nil		
3069	0.03		
3070	0.02		
3071	0.01		
3072	0.01	0.01	
3073	0.01		
3074	0.01		
3075	Ni l		
3076	0.02		
3077	0.01		
3078	0.01		
3079	0.01		
3080	Nil		
3081	0.01		
3082	0.01		
3083	0.01		
Au was o	letermined using 1 AT fusion	ons	

Certified by Donna Handner



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Assaying - Consulting - Representation

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Assay Certificate

2W-0260-RA1

Date: MAR-17-92

Company:BATTLE MOUNTAIN CANADA INCProject:75-JV-28Attn:WAYNE BENHAM

We hereby certify the following Assay of 42 CORE samples submitted MAR-11-92 by MARK MASSON.

Sample Number	Au g/tonne	Au check g/tonne	
3084	0.02		
3085	Nil		
3086	0.01		
3087	0.01		
3088	0.01		
3089	0.01		
3090	0.01	0.01	
3091	0.01		
3092	0.02		
3093	Nil		
3094	Nil		
3095	0.02		

Au was determined using 1 AT fusions

Certified by Donna Hardner



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Assay Certificate

2W-0288-RA1

Date: APR-07-92

Company:BATTLE MOUNTAIN CANADA INCProject:75-JV-28Attn:WAYNE BENHAM

We hereby certify the following Assay of 82 CORE samples submitted MAR-17-92 by MARK MASSON.

Sample	Au	Au check	Pb	Zn	
Number	g/tonne	g/tonne	ppm	ppm	
3096	0.01				
3097	0.02				
3098	Nil				
3099	Ni l				
3100	0.01	Nil			
3101	0.01				
3102	0.01				
3103	Ni 1				
3104	Ni l				
3105	Ni l				
3106	0.01				
3107	Ni l				
3108	Ni 1				
3109	0.01				
3110	Ni l	Nil			
3111	0.01				
3112	Nil				
3113	0.01				
3114	0.02				
3115	Nil				
3116	Nil				
3117	0.01				
3118	0.01				
3119	0.01				
3120	0.01		5	52	
3121	0.01		3	50	
3122	0.01		2	63	
3123	0.01		3	66	
3124	0.01		4	68	
3125	0.01		2	51	
A	and using 1 AT fusic				

Au was determined using 1 AT fusions

Certified by Donna Hardren



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Assaying - Consulting - Representation

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Assay Certificate

2W-0288-RA1

Date: APR-07-92

Company:	BATTLE MOUNTAIN CANADA INC
Project:	75-JV-28
Attn:	WAYNE BENHAM

We hereby certify the following Assay of 82 CORE samples submitted MAR-17-92 by MARK MASSON.

Sample	Au	Au check	Pb	Zn	
Number	g/tonne	g/tonne	ppm	ppm	
3126	0.01		3	52	
3127	0.01		8	49	
3128	0.01		3	61	
3129	0.01		4	66	
3130	0.05	0.08	7	64	
3131	0.01		2	45	
3132	0.02		4	60	
3133	0.01		1	67	
3134	0.01		2	65	•
3135	0.03		4	50	
3136	0.01		2	49	
3137	Nil		3	58	
3138	0.02		4	63	
3139	0.19		5	68	
3140	0.01				
3141	0.02				
3142	0.02				
3143	0.02				
3144	0.01				
3145	0.01	0.02			
3146	0.01				
3163	0.01				
3164	0.01				
3165	0.01				
3166	0.02				
3167	0.02				
3168	0.01				
3169	0.02				
3170	0.02				
3171	0.01				
Au was determ	ined using 1 AT fusio	 ns			

certified by Dona Hadner



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Assaying - Consulting - Representation

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Assay Certificate

2W-0288-RA1

Date: APR-07-92

Company:BATTLE MOUNTAIN CANADA INCProject:75-JV-28Attn:WAYNE BENHAM

We hereby certify the following Assay of 82 CORE samples submitted MAR-17-92 by MARK MASSON.

Sample	Au	Au check	Pb	Zn	
Number	g/tonne	g/tonne	ppm	ppm	
3172	0.01				
3173	0.01				
3174	0.01				
3175	0.01				
3176	0.01				
3177	0.01				
3178	0.01				
3179	0.01				
3180	0.03	0.01			
3181	0.01				
3182	0.01				
3183	0.01				
3184	0.01				
3185	0.01				

Au was determined using 1 AT fusions

Certified by Lonna Handner



Attn:

Swastika Laboratories

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Assaying - Consulting - Representation

Assay Certificate

2W-0278-RA1

BATTLE MOUNTAIN (CANADA) Company: 75-JV-28 Project: WAYNE BENHAM

Date: MAR-19-92

We hereby certify the following Assay of 16 CORE samples submitted MAR-16-92 by MARK MASSON.

Sample Number	Au g/tonne	Au check g/tonne	
3147	0.02		
3148	0.01		
3149	0.01		
3150	0.03	0.04	
3151	0.02		
3152	0.01		
3153	0.01		
3154	0.03		
3155	0.05		
3156	0.02		
3157	0.01		
3158	0.01		
3159	0.01		
3160	0.06		
3161	0.14		
3162	0.04	0.02	

Jonna Adridmen Certified by

P.O. Box 10, Swastika, Ontario P0K 1T0 FAX (705)642-3300 Telephone (705) 642-3244



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Assaying - Consulting - Representation

Assay Certificate

2W-0614-RA1

Company:	BATTLE MOUNTAIN CANADA INC	Date: JUN-24-92
Project:	75-JV-28	Copy 1. BOX 635, KIRKLAND LAKE
Attn:	WAYNE BENHAM	2. FAX TO 567-6448

We hereby certify the following Assay of 23 CORE samples submitted JUN-22-92 by .

Sample	Au	Au check	
Number	g/tonne	g/tonne	
3186	0.01		
3187	0.01	,	·
3188	0.02	0.02	
3189	Ni 1		
3190	0.01		
3191	0.02		
3192	0.02		
3193	0.03	0.03	
3194	0.02		
3195	0.02		
3196	0.01		
3197	0.01		
3198	0.01		
3199	0.01		
3200	0.01		
3201	0.02		
3202	0.01		
3203	0.01		
3204	0.01		
3205	0.01	Ni l	
3206	Nil		
3207	Ni 1		
3208	0.02		
	,		

Au was determined using 1 AT fusions

Certified by Donna Landner



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Assaying - Consulting - Representation

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Assay Certificate

2W-0616-RA1

Date: JUN-24-92

Company:BATTLE MOUNTAIN CANADA INCProject:75-JV-28Attn:WAYNE BENHAM

We hereby certify the following Assay of 57 CORE samples submitted JUN-22-92 by B. MADILL.

Sample	Au	Au check	Au 2nd	
Number	g/tonne	g/tonne	g/tonne	
3209	0.03			
3210	0.01			
3211	0.01			
3212	0.02			
3213	0.02			
3214	0.01	0.01		
3215	0.01			
3216	0.01			
3217	0.02			
3218	0.02			
3219	0.01			
3220	0.02			
3221	0.01			
3222	0.01			
3223	0.01			
3224	Nil			
3225	0.01			
3226	0.01			•
3227	0.02	0.02		
3228	0.01			
3229	0.01			
3230	0.01			
3231	Ni l			
3232	0.01			
3233	0.01			
3234	0.01			
3235	Ni l			
3236	0.01			
3237	0.01			
3238	0.01	0.01		
Au was detern	nined using 1 AT fusio	ons		

certified by Donna Hardner



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Assaying - Consulting - Representation

Page 2 of 2

2W-0616-RA1

Date: JUN-24-92

Established 1928

Assay Certificate

Company:BATTLE MOUNTAIN CANADA INCProject:75-JV-28Attn:WAYNE BENHAM

We hereby certify the following Assay of 57 CORE samples submitted JUN-22-92 by B. MADILL.

Sample Number	Au g/tonne	Au check g/tonne	Au 2nd g/tonne	
3239	0.01			
3240	Ni l			
3241	0.02			
3242	0.01			
3243	0.02			
3244	0.01			
3245	0.04			
3246	15.60	16.32	17.38	
3247	0.07			
3248	0.01			
3249	0.02			
3250	0.01			
3251	0.02			
3252	0.03			
3253	0.03			
3254	0.02			
3255	0.02			
3256	0.02			
3257	Ni l			
3258	0.05	0.05		
3259	0.03			
3260	0.03			
3261	0.03			
3262	0.02			
3263	0.02			
3264	0.05	0.05		
3265	0.03			

Au was determined using 1 AT fusions

Certified by Somo Hardner

P.O. Box 10, Swastika, Ontario P0K 1T0 Telephone (705) 642-3244, FAX (705) 642-3300

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Assay Certificate

2W-0623-RA1

Company:	BATTLE MOUNTAIN
Project:	75-JV-28
Attn:	M.MASSON

Date: JUN-24-92 Copy 1. BOX 635 KIRKLAND LAKE 2. FAX TO 567-6448

We hereby certify the following Assay of 35 CORE samples submitted JUN-23-92 by .

Number g/tonne 3266 0.09 0.09 3267 0.04 3268 0.02 3269 0.03 3271 0.01 3273 0.01 3274 0.02 3277 0.01 3278 0.20 3279 0.02 3276 0.08 3277 0.01 3278 0.20 3280 0.02 3280 0.03 3281 0.06 3282 0.06 3284 0.01 3285 0.08 3284 0.01 3285 0.02 3286 0.03 3287 0.01 3288 0.38 3299 0.02 3290 Ni1 3291 Ni1 3292 0.02 3293 Ni1 3294 0.01 3295 0.01 <th>Sample</th> <th>Au Au che</th> <th>ck l</th>	Sample	Au Au che	ck l
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Number	g/tonne g/toni	10
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3266	0.09 0.0)9
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3267	0.04	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3268	0.02	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3269	0.02	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3270	0.03	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3271	0.01	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3272	0.01	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3273	0.01	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3274	0.02	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3275	0.04	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3276	0.08	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3277	0.01	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3278	0.20	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3279	0.02	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3280	0.03	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3281	0.06	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3282	0.06 0.4	05
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3283	0.03	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3284	0.01	
3286 0.03 3287 0.01 3288 0.38 3289 0.02 3290 Ni 1 3291 Ni 1 3292 0.02 3293 Ni 1 3294 0.01 3295 0.01	3285	0.08	
3287 0.01 3288 0.38 3289 0.02 3290 Ni1 3291 Ni1 3292 0.02 3293 Ni1 3294 0.01 3295 0.01	3286	0.03	
3288 0.38 3289 0.02 3290 Ni1 3291 Ni1 3292 0.02 3293 Ni1 3294 0.01 3295 0.01	3287	0.01	
3289 0.02 3290 Ni 1 3291 Ni 1 3292 0.02 3293 Ni 1 3294 0.01 3295 0.01	3288	0.38	
3290 Ni 1 3291 Ni 1 3292 0.02 3293 Ni 1 3294 0.01 3295 0.01	3289	0.02	
3291 Ni1 0.01 3292 0.02 3293 Ni1 3294 0.01 3295 0.01	3290	Nil	
3292 0.02 3293 Nil 3294 0.01 3295 0.01	3291	Nil 0.	01
3293 Nil 3294 0.01 3295 0.01	3292	0.02	
3294 0.01 3295 0.01	3293	Nil	
3295 0.01	3294	0.01	
	3295	0.01	

Certified by Donna Hardner



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Page 2 of 2

Assay Certificate

2W-0623-RA1

Company:	BATTLE MOUNTAIN
Project:	75-JV-28
Attn:	M.MASSON

Date: JUN-24-92 Copy 1. BOX 635 KIRKLAND LAKE 2. FAX TO 567-6448

We hereby certify the following Assay of 35 CORE samples submitted JUN-23-92 by .

Sample	Au	Au check	
Number	g/tonne	g/tonne	
3296 3297 3298 3299 3300	0.01 0.02 0.05 0.02 0.01		

Certified by Sonna Landner



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2W-0637-RA1

Assur Certificue	<u>Assav</u>	<u>Certi</u>	<u>ficate</u>
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Date: JUL-13-92

Company: BATTLI Project: 75-JV-28 Attn: WAYNE	E MOUNTAIN CANADA INC Benham
---	---------------------------------

RECEIVED JUL 2 2 1992

We hereby certify the following Assay of 74 CORE samples submitted JUN-29-92 by .

Sample	Au	Au check	Au 2nds	
Number	g/tonne	g/tonne	g/tonne	
3301	Ni l			
3302	Ni l			
3303	Ni l			
3304	1.17	1.20	1.11	
3305	0.02			·
3306	Ni l			
3307	0.01			
3308	Ni l			
3309	0.01			
3310	0.01			
3311	Ni 1			
3312	Ni 1			
3313	Ni l			
3314	Ni 1			
3315	0.01			
3316	Ni l			
3317	0.01			
3318	0.01			
3319	0.02	0.02		
3320	0.01			
3321	0.01			
3322	Ni l			
3323	0.02			
3324	0.01			
3325	0.01			
3326	Ni l			
3327	Ni l			
3328	0.02			
3329	0.02			
3330	0.02			
Au was determined	using 1 AT fusio	ons		

Certified by Donna Aardner



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Assaying - Consulting - Representation

Page 2 of 3

2W-0637-RA1

Assay Certificate

Date: JUL-13-92

Company:	BATTLE MOUNTAIN CANADA INC
Project:	75-JV-28
Attn:	WAYNE BENHAM

We herel submitted	i JUN-29-92 by .	iy of 74 COF	te samples	SEIVED JUL 2 2 1000
Sample Number	Au g/tonne	Au check g/tonne	Au 2nds g/tonne	- "° « «
3331	0.04	0.03		
3332 2222	0.02			
2222	0.02			
3335	0.03			
3336	0.02			
3337	0.01			
3338	Nil			
3339	0.01			
3340	0.01		0.01	
3341	0.03	0.03	0.02	
3342	0.02		0.01	
3343	0.03		0.03	
3344	0.01		0.01	
3345	0.02		0.01	
3346	0.18		0.10	
3347	0.08		0.16	
3348	0.31		0.24	
3349	0.20		0.21	
3350	0.37		0.21	
3351	0.35		0.31	
3352	0.03		0.02	
3353	Nil		0.01	
3354	0.02		0.02	
3355	0.24		0.21	
3356	0.01		0.01	
3357	0.01			
3358	0.03	• • •		
3359	0.02	0.03		
3360	0.02			

Certified by Donna Handner

S	Swa	A Division	Labo of Assayers Corpor	oratories ation Ltd.
Entabli	As As	ssaying - Co	onsulting - Re	presentation
Estabili	sned 1928		Ū.	Page 3 of 3
Ass	ay Certificate			2W-0637-RA1
Company: Project: Attn:	BATTLE MOUNTAIN (75-JV-28 WAYNE BENHAM	CANADA IN	C	Date: JUL-13-92
We herel submitted	by <i>certify</i> the following Assa	y of 74 COR	RE samples	RECEIVED JUL 2 2 1992
Sample Number	Au g/tonne	Au check g/tonne	Au 2nds g/tonne	
3361	0.01			
3362	0.01			
3363	0.01			
3364	0.01			
3303	0.01			
3366	0.04	0.00		
3367	0.03	0.03		
3300	0.04			
3370	0.02			
2271	0.02			
3371	0.02		0.01	
3373	0.20		0.09	
3374	0.23		0.35	

Au was determined using 1 AT fusions

Certified by Donna Hardner



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Assaying - Consulting - Representation

Assay Certificate 2W-0639-RA1 Date: JUL-03-92 **BATTLE MOUNTAIN CANADA INC** Company: Project: 75-JV-28 WAYNE BENHAM Attn: RECEIVED JUL 1 3 1992 We hereby certify the following Assay of 30 CORE samples submitted JUN-29-92 by. Au check Sample Au g/tonne Number g/tonne 3375 0.03 0.01 3376 0.01 3377 3378 0.01 3379 0.02 -----0.03 0.02 3380 3381 0.02 0.03 3382 3383 Ni1 3384 0.01 ------0.01 3385 3386 Ni I 3387 0.01 3388 0.01 0.02 3389 0.02 3390 0.01 3391 0.01 3392 0.01 3393 0.01 3394 0.01 0.01 3395 3396 0.01 3397 0.02 3398 0.01 3399 0.02 3400 0.01 3401 0.01 3402 0.02 0.02 3403 0.01 3404 0.02

Au was determined using 1 AT fusions

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Assaying - Consulting - Representation

Assay Certificate

2W-0641-RA1

1100	aj <u>compound</u>		2 11 - VU-1 - IAI
Company: Project: Attn:	BATTLE MOUNTAIN 75-JV-28 WAYNE BENHAM		Date: JUL-03-92 Copy 1. BOX 635 KIRKLAND LAKE 2. FAX TO 567-6448
We hereb submitted	<i>y certify</i> the following Assay JUN-30-92 by MARK MA	y of 30 CORE samp SSON.	RECEIVED JUL 1 3 1992
Sample Number	Au g/tonne	Au check g/tonne	
3405 3406	0.01 0.02		
3407 3408	0.01 0.01	Ni l	
3409	0.01		
3411 3412	Ni 1 0 01		
3413 3414	0.01		
3415 3416	0.02 Ni 1		
3417 3418	0.01 Ni 1		
3419 3420	Ni 1 0.02	0.02	
3421 3422	0.01 0.02		
3423 3424	0.01 0.02		
3425 3426	0.01 0.01		
3427 3428 3429	0.01 0.01 Nil		
3430 3431	Ni 1 Ni 1		· · · · · · · · · · · · · · · · · · ·
3432 3433	Ni 1 0.01		
3434	0.01		

Certified by Donna Hardner



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Assay Certificate 2W-0647-RA1 **BATTLE MOUNTAIN CANADA INC** Date: JUL-08-92 Company: 75-JV-28 Project: WAYNE BENHAM Attn: RECEIVED JUL 1 3 1992 We hereby certify the following Assay of 12 CORE samples submitted JUL-02-92 by MARK MASSON. Sample Au check Au g/tonne Number g/tonne 3435 0.01 3436 0.01 3437 0.01 3438 0.01 3439 0.01 3440 0.03 3441 0.02 0.02 3442 0.02 3443 0.04 3444 0.02

Au was determined using 1 AT fusions

0.01

Ni1

Certified by Donna Land-ner

P.O. Box 10, Swastika, Ontario P0K 1T0 Telephone (705) 642-3244, FAX (705) 642-3300

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Assay Certificate

2W-0650-RA1

Company: BATTLE MOUNTAIN CANADA INC Project: 75-JV-28

Date: JUL-08-92

Project: 75-JV-28 Aun: WAYNE BENHAM

We hereby certify the following Assay of 9 CORE samples submitted JUL-03-92 by MARK MASSON.

Sample	Au	Au check	
Number	g/tonne	g/tonne	
3447	0.02	0.02	
3448	0.01		
3449	0.02		
3450	0.01		
3451	0.01		
3452	Nil		
3453	0.01		
3454	0.01		
3455	0.01		

Au was determined using 1 AT fusions

Certified by Donna Handner

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			Page 1 of 3
Ass	<u>say Certificate</u>		2W-0669-RA1
Company:	BATTLE MOUNTAIN (CANADA INC	Date: JUL-09-92
Project:	75JV28		
Attn:	WAYNE BENHAM		
We herel submitte	by <i>certify</i> the following Assa d JUL-06-92 by .	ay of 70 CORE samples	RECEIVED JUL 2 2 1991
Sample	Au	Au check	
Number	g/tonne	g/tonne	
3456	0.01		
3457	0.02		

_ _ _ _ _ _ _

3457	0.02		
3458	0.02		
3459	0.01		
3460	0.01	0.02	
3461	0.01		
3462	0.01		
3463	Ni 1		
3464	Ni 1		
3465	Ni l		
3466	Ni l		
3467	0.01		
3468	0.02		
3469	0.01		
3470	0.04		
3471	0.03	0.03	
3472	0.02		
3473	0.01		
3474	0.03		
3475	0.06		
3476	0.02		
3477	0.02		
3478	0.02		
3479	0.02		
3480	0.02		
3481	0.03		
3482	0.02		
3483	0.02		
3484	0.02		
3485	0.01	0.01	
Au was determine	d using 1 AT fusions		***************************************

Certified by Donna Hardner



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Page 2 of 3

Assay Certificate

2W-0669-RA1

Date: JUL-09-92

Company: BATTLE MOUNTAIN CANADA INC Project: 75JV28 Attn: WAYNE BENHAM

We hereby certify the following Assay of 70 CORE samples submitted JUL-06-92 by .

RECEIVED JUL 2 2 1921

Sample	Au	Au check	
Number	g/tonne	g/tonne	
3486	0.02		
3487	0.03		
3488	0.02		
3489	0.01		
3490	0.02		
3491	0.02		•••••••••••••••••••••••••••••••••••••••
3492	0.01		
3493	0.02		
3494	0.03		
3495	0.01	0.01	
3496	0.02		
3497	Ni l		
3498	0.02		
3499	0.01		
3500	0.01		
3501	0.01		
3502	0.01		
3503	0.05		
3504	0.01		
3505	0.01		
3506	0.01		
3507	Ni 1		
3508	Ni 1		
3509	0.02	0.01	
3510	Ni l		
3511	0.01		
3512	0.01		
3513	0.02		
3514	0.01		
3515	0.03		
Au was determi	ined using 1 AT fusion	ns	

Certified by Donne Hardner



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Assay Certificate

2W-0669-RA1

Date: JUL-09-92

Company:BATTLE MOUNTAIN CANADA INCProject:75JV28Attn:WAYNE BENHAM

We hereby certify the following Assay of 70 CORE samples submitted JUL-06-92 by .

RECEIVED JUL 2 2 DEC

Sample Number	Au g/tonne	Au check g/tonne		•
3516	0.02		 	
3517	0.01			
3518	Ni l			
3519	Ni l			
3520	0.01			
3521	0.01		 	
3522	0.01			
3523	0.01	0.01		
3524	0.01			
3525	0.01			

Au was determined using 1 AT fusions

Certified by Donna Handner



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Assay Certificate

2W-0670-RA1

Date: JUL-13-92

RECEIVED JUL 2 2 1992

Company:	BATTLE MOUNTAIN CANADA INC
Project:	75-JV-28
Attn:	WAYNE BENHAM

We hereby certify the following Assay of 30 CORE samples submitted JUL-06-92 by MARK MASSON.

Sample	Au	Au check	
Number	g/tonne	g/tonne	
3526	0.07	0.09	
3527	0.02		
3528	0.02		
3529	0.01		
3530	0.15		
3531	0.26		
3532	0.03		
3533	0.03		
3534	0.02		
3535	0.02		
3536	0.02		
3537	0.02		
3538	0.04	0.04	
3539	0.06		
3540	0.05		
3541	0.05		
3542	0.15		
3543	0.01		
3544	0.02		
3545	0.02		
3546	0.76		***************************************
3547	0.69		
3548	0.86		
3549	0.96	1.03	
3550	0.93		
3551	0.11		
3552	0.02		
3553	0.01		
3554	0.28		
3555	0.05		
An was deter	mined using 1 AT fusion		

Au was determined using 1 AT fusions

Certified by Donna Handner



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Page 1 of 2

Assay Certificate

2W-0679-RA1

Company:	BATTLE MOUNTAIN CANADA INC
Project:	75-JV-28
Attn:	WAYNE BENHAM

We hereby certify the following Assay of 53 CORE samples submitted JUL-07-92 by MARK MASSON.

Sample	Au	Au check	Au 2nd	
Number	g/t	g/tonne	g/tonne	
3556	0.02			
3557	0.01			
3558	0.05			
3559	0.02			
3560	0.01			
3561	0.02			
3562	0.01			
3563	0.07			
3564	0.03			
3565	0.02			
3566	0.04			
3567	2.31	2.40	2.26	
3568	0.07			
3569	0.06			
3570	0.01			
3571	0.03			
3572	0.04			
3573	0.03			
3574	0.01			
3575	0.01			
3576	0.01			
3577	Ni 1			
3578	0.01			
3579	0.01			
3580	Ni l			
3581	0.01			
3582	0.01			
3583	0.02			
3584	0.02			
3585	0.01	0.01		
An was determined using	1 AT fusio			

Au was determined using I AT fusions

Certified by Donna Landner

P.O. Box 10, Swastika, Ontario P0K 1T0 FAX (705)642-3300 Telephone (705) 642-3244

Date: JUL-14-92

NECENCED JUL 2 2 MAX



Assay Certificate

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2W-0679-RA1

Date: JUL-14-92

Company:	BATTLE MOUNTAIN CANADA INC
Project:	75-JV-28
Attn:	WAYNE BENHAM

We hereby certify the submitted JUL-07-92	following Assa by MARK MA	E samples	RECEIVED JUL 2 2 MOR	
Sample Number	Au g/t	Au check g/tonne	Au 2nd g/tonne	- wite ;
3586 3587 3588 3589 3590	0.05 0.13 0.02 0.11 0.43	0.38		
3591 3592 3593 3594 3595	0.15 0.09 0.03 Ni1 0.03			
3596 3597 3598 3599 3600	0.01 Ni1 0.01 Ni1 0.04			
3601 3602 3603 3604 3605	0.01 0.01 0.01 Ni1 0.01			
3606 3607 3608	0.12 Ni 1 Ni 1	0.09		

Au was determined using 1 AT fusions

Certified by Donna Hardner



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Assay Certificate

2W-0683-RA1

Date: JUL-14-92

Company:	BATTLE MOUNTAIN CANADA INC
Project:	75-JV-28
Attn:	WAYNE BENHAM

We hereby certify the following Assay of 21 CORE samples submitted JUL-08-92 by MARK MASSON.

RECEIVED JUL 2 2 1992

Sample	Au	Au check	
Number	g/tonne	g/tonne	
3609	Ni l	Nil	
3610	0.01		
3611	0.01		
3612	Ni l		
3613	Nil		
3614	0.01		
3615	Ni l		
3616	Ni l		
3617	Ni l		
3618	0.01		
3619	0.01		
3620	0.01	Ni l	
3621	0.01		
3622	0.01		
3623	0.01		
3624	Ni l		
3625	0.01		
3626	Ni l		
3627	Ni l	0.01	
3628	0.01		
3629	Nil		

Au was determined using 1 AT fusions

Certified by Donna Handner



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Assay Certificate

2W-0759-RA1

Date: JUL-29-92

Company:**BATTLE MOUNTAIN CANADA INC**Project:75-JV-28Attn:WAYNE BENHAM

We hereby certify the following Assay of 26 CORE samples submitted JUL-24-92 by MARK MASSON.

Sample	Au	Au check	
Number	g/tonne	g/tonne	
3630	0.01		
3631	0.01	0.01	
3632	Ni l		
3633	Ni l		
3634	0.01		
3635	Ni 1		
3636	Ni l		
3637	0.01		
3638	0.01		
3639	Ni I		
3640	0.01		
3641	0.01		
3642	0.01		
3643	0.01		
3644	Ni l		
3645	0.01		
3646	Ni l		
3647	0.01	0.01	
3648	0.01		
3649	0.01		
3650	0.01		
3651	0.01		
3652	0.01	0.01	
3653	0.05		
3654	0.01		
3655	0.01		
3656	0.01		

Au was determined using 1 AT fusions

Certified by Donna Handner

P.O. Box 10, Swastika, Ontario P0K 1T0 Telephone (705) 642-3244 FAX (705) 642-3300



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Assay Certificate

2W-0768-RA1

Company:	BATTLE MOUNTAIN CANADA INC	
Project:	75-JV-28	
Attn:	WAYNE BENHAM	

Date: JUL-31-92 Copy 1. BOX 635 KIRKLAND LAKE, P2N 3K1 2. FAX # 567-6448

We hereby certify the following Assay of 44 CORE samples submitted JUL-27-92 by MARK MASSON.

Sample	Au	Au Check	
Number	g/tonne	g/tonne	
3657	0.04		
3658	0.01		
3659	0.04		
3660	NIL		
3661	0.02		
3662	0.01	0.01	
3663	0.04		
3664	0.01		
3665	0.02		
3666	0.01		
3667	0.01		
3668	NIL		
3669	0.03		
3670	NIL		
3671	0.01		
3672	NIL	NIL	
3673	0.02		
3674	0.01		
3675	NIL		
3676	0.01		
3677	NIL		
3678	0.01		
3679	0.02		
3680	0.01		
3681	0.01		
3682	NIL		
3683	NIL		
3684	0.01		
3685	NIL		
3686	NIL		
Au was determine	ed using 1 AT fusion	 c	

Certified by Jonna Handner



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Assay Certificate

2W-0768-RA1

Company:	BATTLE MOUNTAIN CANADA INC	Date: JUL-31-92
Project: Attn:	75-JV-28 WAYNE BENHAM	Copy 1. BOX 635 KIRKLAND LAKE, P2N 3K1 2. FAX # 567-6448

We hereby certify the following Assay of 44 CORE samples submitted JUL-27-92 by MARK MASSON.

Sample Number	Au g/tonne	Au Check g/tonne	
3687	0.01		
3688	NIL		
3689	0.02		
3690	0.04		
3691	NIL		
3692	0.01		
3693	0.05	0.03	
3694	0.06		
3695	0.03		
3696	0.05		
3697	NIL		
3698	NIL		
3699	0.01		
3700	0.01		

Au was determined using 1 AT fusions

Certified by Donna Sardner



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Assay Certificate

2W-0787-RA1

Company:	BATTLE MOUNTAIN CANADA INC	Date: AUG-05-92
Project:	75-JV-28	Copy 1. BOX 635 KIRKLAND LAKE, ONT. P2N 3K1
Attn:	WAYNE BENHAM	2. FAX # 567-6448

We hereby certify the following Assay of 28 CORE samples submitted JUL-30-92 by MARK MASSON.

Au	Au Check	
g/tonne	g/tonne	
0.01		*****
0.01		
0.01		
0.01		
0.01	0.01	
0.01		
Nil		
0.01		
0.01		
0.01		
0.01		
0.01	0.01	
0.01	0101	
Ni 1		
0.01		
0.01		***************************************
0.01		
0.01	0.01	
0.01		
Ni l		
Nil		
Ni 1		
Ni l		
0.01		
0.01		
Nil		
0.01		
0.01	0.01	
	Au g/tonne 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.0	AuAu Check $g/tonne$ $g/tonne$ 0.01

Au was determined using 1 AT fusions

Certified by
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Assay Certificate

2W-0805-RA1

Date: AUG-12-92

Company: BATTLE MOUNTAIN Project: 75JV28 Attn:

We hereby certify the following Assay of 69 CORE samples submitted AUG-04-92 by .

Number $g/tonne$ 3729 0.01 3730 0.01 3731 Ni1 3732 0.01 3733 Ni1 3734 0.02 3735 0.03 3736 0.01 3737 0.01 3738 0.03 3739 0.04 3744 0.02 3742 0.02 3743 Ni1 3744 0.02 3744 0.02 3745 0.06 3746 0.03 3746 0.02 3747 0.05 3748 0.07 3749 0.22 0.22 0.22 3751 0.02 3751 0.02 3754 0.50 0.02 3755 0.02 3756 0.04 3757 0.02 3758 0.02	Sample	Au	Au check	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Number	g/tonne	g/tonne	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3729	0.01		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3730	0.01		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3731	Nil		·
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	3732	0.01		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3733	Ni 1		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3734	0.02		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3735	0.03	0.03	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3736	0.03		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3737	0.01		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3738	0.03		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3739	0.04		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3740	0.02		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3741	0.02		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3742	0.02		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3743	Ni l		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3744	0.02		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3745	0.06		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3746	0.03		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3747	0.05		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3748	0.07		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3749	0.22	0.22	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3750	0.03		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3751	0.02		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3752	0.02		
3754 0.50 0.46 3755 0.02 3756 0.04 3757 0.02 3758 0.02	3753	0.02		
3755 0.02 3756 0.04 3757 0.02 3758 0.02	3754	0.50	0.46	
3756 0.04 3757 0.02 3758 0.02	3755	0.02		
3757 0.02 3758 0.02	3756	0.04		
3758 0.02	3757	0.02		
	3758	0.02		

Certified by Donna Handner

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Assaying - Consulting - Representation

Page 2 of 3

Assay Certificate

2W-0805-RA1

Date: AUG-12-92

Company:	BATTLE MOUNTAIN
Project:	75JV28
Attn:	

We hereby certify the following Assay of 69 CORE samples submitted AUG-04-92 by.

Sample Au	Au check
Number g/tonne	g/tonne
3759 0.02	
3760 0.05	
3761 0.02	
3762 0.02	
3763 0.01	
3764 0.02	
3765 0.02	0.01
3766 Ni 1	
3767 0.01	
3768 0.01	
3769 Nil	
3770 Nil	
3771 0.01	
3772 Nil	
3773 0.02	
3774 0.01	
3775 Nil	
3776 0.01	0.01
3777 Ni l	
3778 Ni l	
3779 Nil	
3780 0.01	
3781 Ni l	
3782 Ni l	
3783 0.01	
3784 0.01	
3785 0.01	
3786 Ni 1	
3787 Ni l	
3788 0.01	0.01

Certified by Donna Adada

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Page 3 of 3

Assay Certificate

2W-0805-RA1

Company: BATTLE MOUNTAIN Project: 75JV28 Attn: Date: AUG-12-92

We hereby certify the following Assay of 69 CORE samples submitted AUG-04-92 by .

Sample Number	Au g/tonne	Au check g/tonne
3789	0.01	· · · · · · · · · · · · · · · · · · ·
3790	0.02	
3791	0.02	
3792	Ni l	
3793	0.02	
3794	0.03	
3795	0.01	
3796	0.01	
3797	0.01	

Certified by Donna Landner

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Assaying - Consulting - Representation

Page 1 of 2

Assay Certificate

2W-0818-RA1

Company:	BATTLE MOUNTAIN
Project:	75-JV-28
Attn:	WAYNE BENHAM

Date: AUG-12-92 Copy 1. BOX 635 KIRKLAND LAKE, ONT. P2N 3K1 2. FAX # 567-6448

We hereby certify the following Assay of 48 CORE samples submitted AUG-05-92 by .

Name g/tonne 3798 Nil 3799 0.03 3800 Nil 3801 Nil 3802 Nil 3803 Nil 3804 Nil 3805 Nil 3806 Nil 3807 0.01 3808 0.01 3809 0.01 3810 0.01 3811 0.01 3812 0.01 3813 0.01 3814 0.01 3815 Nil 3816 Nil 3817 Nil 3818 0.01 3819 Nil 3812 0.01 3813 0.01 3814 0.01 3820 0.03 3821 0.01 3822 0.02 3824 0.01 3825 0.01 3826 Nil 3827	Sample	Au	Au check	
3798 Ni1 Ni1 3799 0.03 3800 Ni1 3801 Ni1 3802 Ni1 3803 Ni1 3804 Ni1 3805 Ni1 3806 Ni1 3807 0.01 3808 0.01 3809 0.01 3810 0.01 3813 0.01 3814 0.01 3815 Ni1 3816 Ni1 3817 Ni1 3818 0.01 3819 Ni1 3810 0.01 3811 0.01 3812 0.01 3813 0.01 3814 0.01 3818 0.01 3820 0.03 3821 0.01 3822 0.02 3824 0.01 3825 0.01 3826 Ni1 3827 Ni1	Number	g/tonne	g/tonne	
3799 0.03 3800 Ni1 3801 Ni1 3803 Ni1 3804 Ni1 3805 Ni1 3806 Ni1 3807 0.01 3808 0.01 3810 0.01 3811 0.01 3812 0.01 3813 0.01 3814 0.01 3815 Ni1 3816 Ni1 3817 Ni1 3818 0.01 3819 Ni1 3820 0.03 3821 0.01 3822 0.02 3824 0.01 3825 0.01 3826 Ni1 3827 Ni1	3798	Ni l	Ni 1	
3800 Ni1 3801 Ni1 3802 Ni1 3803 Ni1 3804 Ni1 3805 Ni1 3806 Ni1 3807 0.01 3808 0.01 3809 0.01 3810 0.01 3811 0.01 3812 0.01 3813 0.01 3814 0.01 3815 Ni1 3816 Ni1 3817 Ni1 3818 0.01 3819 Ni1 3820 0.02 3823 0.02 3824 0.01 3825 0.01 3826 Ni1 3827 Ni1	3799	0.03		
3801 Ni1 3802 Ni1 3803 Ni1 3804 Ni1 3805 Ni1 3806 Ni1 3807 0.01 3808 0.01 3809 0.01 3810 0.01 3811 0.01 3812 0.01 3813 0.01 3814 0.01 3815 Ni1 3816 Ni1 3817 Ni1 3818 0.01 3819 Ni1 3820 0.03 3821 0.01 3822 0.02 3823 0.02 3824 0.01 3825 0.01 3826 Ni1 3827 Ni1	3800	Ni l		
3802 Ni1 3803 Ni1 3804 Ni1 3805 Ni1 3806 Ni1 3807 0.01 3808 0.01 3809 0.01 3810 0.01 3811 0.01 3812 0.01 3813 0.01 3814 0.01 3815 Ni1 3816 Ni1 3817 Ni1 3818 0.01 3819 Ni1 3820 0.03 3821 0.01 3822 0.02 3823 0.02 3824 0.01 3825 0.01 3826 Ni1 3827 Ni1	3801	Ni l		
3803 Ni1 3804 Ni1 3805 Ni1 3806 Ni1 3807 0.01 3808 0.01 3809 0.01 3810 0.01 3812 0.01 3813 0.01 3814 0.01 3815 Ni1 3816 Ni1 3817 Ni1 3818 0.01 3819 Ni1 3820 0.02 3821 0.01 3822 0.02 3823 0.02 3824 0.01 3825 0.01 3826 Ni1 3827 Ni1	3802	Nil		
3804 Ni 1 3805 Ni 1 3806 Ni 1 3807 0.01 3808 0.01 3809 0.01 3810 0.01 3811 0.01 3812 0.01 3813 0.01 3814 0.01 3815 Ni 1 3816 Ni 1 3817 Ni 1 3818 0.01 3820 0.03 3821 0.01 3822 0.02 3823 0.02 3824 0.01 3825 0.01 3827 Ni 1	3803	Nil		
3805 Ni1 3806 Ni1 3807 0.01 3808 0.01 3809 0.01 3810 0.01 3811 0.01 3812 0.01 3813 0.01 3814 0.01 3815 Ni1 3816 Ni1 3817 Ni1 3820 0.03 3821 0.01 3823 0.02 3824 0.01 3825 0.01 3827 Ni1	3804	Ni 1		
3806 Ni 1 3807 0.01 3808 0.01 3809 0.01 3810 0.01 3811 0.01 3812 0.01 3813 0.01 3814 0.01 3815 Ni 1 3816 Ni 1 3817 Ni 1 3818 0.01 3820 0.03 3821 0.01 3823 0.02 3824 0.01 3825 0.01 3827 Ni 1	3805	Ni 1		
3807 0.01 3808 0.01 3809 0.01 3810 0.01 3811 0.01 3812 0.01 3813 0.01 3814 0.01 3815 Nil 3816 Nil 3817 Nil 3818 0.01 3820 0.03 3821 0.01 3822 0.02 3823 0.02 3824 0.01 3825 0.01 3826 Nil 3827 Nil	3806	Ni 1		
3808 0.01 3809 0.01 3810 0.01 3811 0.01 3813 0.01 3814 0.01 3815 Ni1 3816 Ni1 3817 Ni1 3818 0.01 3819 Ni1 3820 0.03 3821 0.01 3823 0.02 3824 0.01 3825 0.01 3826 Ni1 3827 Ni1	3807	0.01		
3809 0.01 3810 0.01 3811 0.01 3812 0.01 3813 0.01 0.01 3814 0.01 3815 Ni1 3816 Ni1 3817 Ni1 3818 0.01 3819 Ni1 3820 0.03 3821 0.01 3822 0.02 3823 0.02 3824 0.01 3825 0.01 3826 Ni1 3827 Ni1	3808	0.01		
3810 0.01 3811 0.01 3812 0.01 3813 0.01 0.01 3814 0.01 3815 Ni1 3816 Ni1 3817 Ni1 3818 0.01 3819 Ni1 3820 0.03 3821 0.01 3822 0.02 3823 0.02 3824 0.01 3825 0.01 3826 Ni1 3827 Ni1	3809	0.01		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3810	0.01		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3811	0.01		
3813 0.01 0.01 3814 0.01 3815 Ni 1 3816 Ni 1 3817 Ni 1 3818 0.01 3819 Ni 1 3820 0.03 3821 0.01 3822 0.02 3823 0.02 3824 0.01 3825 0.01 3826 Ni 1 3827 Ni 1	3812	0.01		
3814 0.01 3815 Ni1 3816 Ni1 3817 Ni1 3818 0.01 3819 Ni1 3820 0.03 3821 0.01 3822 0.02 3823 0.02 3824 0.01 3825 0.01 3826 Ni1 3827 Ni1	3813	0.01	0.01	
3815 Ni 1 3816 Ni 1 3817 Ni 1 3818 0.01 3819 Ni 1 3820 0.03 3821 0.01 3822 0.02 3823 0.02 3824 0.01 3825 0.01 3826 Ni 1 3827 Ni 1	3814	0.01		
3816 Ni 1 3817 Ni 1 3818 0.01 3819 Ni 1 3820 0.03 3821 0.01 3822 0.02 3823 0.02 3824 0.01 3825 0.01 3826 Ni 1 3827 Ni 1	3815	Ni 1		
3817 Ni 1 3818 0.01 3819 Ni 1 3820 0.03 3821 0.01 3822 0.02 3823 0.02 3824 0.01 3825 0.01 3826 Ni 1 3827 Ni 1	3816	Ni l		
3818 0.01 3819 Ni1 3820 0.03 3821 0.01 3822 0.02 3823 0.02 3824 0.01 3825 0.01 3826 Ni1 3827 Ni1	3817	Nil		
3819 Ni 1 3820 0.03 3821 0.01 3822 0.02 3823 0.02 3824 0.01 3825 0.01 3826 Ni 1 3827 Ni 1	3818	0.01		
3820 0.03 3821 0.01 3822 0.02 3823 0.02 3824 0.01 3825 0.01 3826 Ni 1 3827 Ni 1	3819	Ni 1		
3821 0.01 3822 0.02 3823 0.02 3824 0.01 3825 0.01 3826 Ni 1 3827 Ni 1	3820	0.03		
3822 0.02 3823 0.02 3824 0.01 3825 0.01 3826 Ni 1 3827 Ni 1	3821	0.01		
3823 0.02 3824 0.01 3825 0.01 3826 Ni 1 3827 Ni 1	3822	0.02		
3824 0.01 3825 0.01 3826 Ni 1 3827 Ni 1	3823	0.02		
3825 0.01 3826 Ni 1 3827 Ni 1	3824	0.01		
3826 Ni l 3827 Ni l	3825	0.01		
3827 Ni l	3826	Nil		
	3827	Nil		

Certified by Donna Adadner

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Assay Certificate

2W-0818-RA1

Company:	BATTLE MOUNTAIN
Project:	75-JV-28
Attn:	WAYNE BENHAM

Date: AUG-12-92 Copy 1. BOX 635 KIRKLAND LAKE, ONT. P2N 3K1 2. FAX # 567-6448

We hereby certify the following Assay of 48 CORE samples submitted AUG-05-92 by .

Sample	Au	Au check	
Number	g/tonne	g/tonne	
3828	Nil		
3829	Nil		
3830	0.01		
3831	0.01		
3832	0.02		
3833	0.02		
3834	0.03		
3835	0.01	0.01	
3836	0.02		
3837	0.01		
3838	0.01		
3839	0.01		
3840	0.02		
3841	0.02		
3842	0.02		
3843	0.02		
3844	0.02		
3845	0.02	0.02	

Certified by Donna Landner

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Assaying - Consulting - Representation

Page 1 of 3

Assay Certificate

2W-0858-RA1

Date: AUG-26-92

BATTLE MOUNTAIN CANADA INC Company: 75-JV-28

Project: Attn:

WAYNE BENHAM

We hereby certify the following Assay of 79 CORE samples submitted AUG-12-92 by MARK MASSON.

Sample	Au	Au check	Au 2nd	Ag	Cu	Mo	Рь	Zn	Te	ICAP	
Number	g/tonne	g/tonne	g/tonne	PFM	PFM	PPM	PEM	PIM	PEM	Multi	
3846	Nil										
3847	Nil										
3848	0.44			0.3	178	7	16	159	1		
3849	5.01	5.21		5.1	647	10	1.17%	134	1		
3850	0.02										
3851	0.01										•
3852	Nil										
3853	Ni l										
3854	Ni l										
3855	Nil										
3856	Nil										
3857	0.01										
3858	Nil						•				
3859	Ni I										
3860	13.37	15.50	14.67	5.8	389	13	9260	892			
3861	0.41			0.3	96	3	80	111	1		
3862	0.11			0.1	67	2	21	135	1		
3863	0.13			0.1	57	2	35	121	1		
3864	1.61			1.3	179	5	2100	86	1		
3865	0.02			0.1	50	2	19	116	1		
3866	Nil			0.1	41	2	10	108	1		
3867	0.12			0.2	143	4	264	115	1		
3868	2.62	2.61		0.9	54	4	25	176	1		
3869	1.20			0.4	85	3	47	165	1		
3870	1.48			0.7	91	6	32	63	1		
3871	46.29	46.42	46.99	36.2	2840	13	1.07%	67	17		
3872	21.05			75.3	5110	10	9.50%	119	54		
3873	19.95			89.0	6220	12	8.46%	113	73		
3874	5.45			4.6	175	14	624	2	2		
3875	0.89			1.4	307	4	454	38	1		

Au was determined using 1 AT fusions

Certified by Donne Hardner

P.O. Box 10, Swastika, Ontario P0K 1T0 FAX (705)642-3300 Telephone (705) 642-3244



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Assaying - Consulting - Representation

Page 2 of 3

Assay Certificate

2W-0858-RA1

Date: AUG-26-92

BATTLE MOUNTAIN CANADA INC Company: 75-JV-28

Project: Attn:

WAYNE BENHAM

We hereby certify the following Assay of 79 CORE samples submitted AUG-12-92 by MARK MASSON.

Sample	Au	Au check	Au 2nd	Ag	Cu	Mo	Рь	Zn	Te	ICAP	
Number	g/tonne	g/tonne	g/tonne	PPM	PEM	PFM	PFM	PFM	PEM	Multi	
3876	0.72			1.2	190	5	652	40	- 1		
3877	0.38			0.6	85	5	266	36	1		
3878	3.22			2.1	171	5	144	29	2		
3879	1.12			0.5	221	2	72	41	1		
3880	6.00	5.90	5.78	3.1	425	3	66	33	1		
3881	3.29			1.7	98	5	59	34	1		
3882	1.82	1.65		0.9	45	11	35	34	1		
3883	2.06			1.1	32	15	34	41	1		
3884	0.51			0.3	80	5	17	65	1		
3885	0.54			0.2	41	3	20	81	1		
3886	0.24			0.2	25	4	12	98	1		
3887	0.14			0.1	45	3	8	87	1		
3888	0.02										
3889	0.04										
3890	0.02										
3891	0.02										
3892	Nil										
3893	0.03										
3894	0.04	0.03									
3895	Nil										
3896	0.04										
3897	0.01										
3898	0.01										
3899	0.04										
3900	0.01	0.01									
3901	0.01										
3902	Nil										
3903	Nil										i.
3904	0.02										
3905	Nil										
	ad mains	1 4 77 6									

Au was determined using 1 AT fusions

Certified by Sonna Hardner

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Assaying - Consulting - Representation

Page 1 of 3

Assay Certificate

2W-0858-RA1

Date: AUG-26-92

Company: BATTLE MOUNTAIN CANADA INC Project: 75-JV-28

Attn:WAYNE BENHAMWe hereby certify the following Assay of 79 CORE samples

submitted AUG-12-92 by MARK MASSON.

Sample	Au	Au check	Au 2nd	Ag	Cu	Мэ	Рь	Zn	Te	ICAP	
Number	g/tonne	g/tonne	g/tonne	PIM	PIM	PBM	PEM	PIM	PEM	Multi	
3846	Nil										
3847	Nil										
3848	0.44			0.3	178	7	16	159	1		
3849	5.01	5.21		5.1	647	10	1.17%	134	. 1		
3850	0.02										
3851	0.01										
3852	Nil										
3853	Nil										
3854	Nil										
3855	Nil										
3856	Nil										
3857	0.01										
3858	Nil										
3859	Nil										
3860	13.37	15.50	14.67	5.8	389	13	9260	892	1		
3861	0.41			0.3	96	3	80	111	1		
3862	0.11			0.1	67	2	21	135	1		
3863	0.13			0.1	57	2	35	121	1		
3864	1.61			1.3	179	5	2100	86	1		
3865	0.02			0.1	50	2	19	116	1		
3866	Nil			0.1	41	2	10	108	1		
3867	0.12			0.2	143	4	264	115	1		
3868	2.62	2.61		0.9	54	4	25	176	1		
3869	1.20			0.4	85	3	47	165	1		
3870	1.48			0.7	91	6	32	63	1		
3871	46.29	46.42	46.99	36.2	2840	13	1.07%	67	17		
3872	21.05			75.3	5110	10	9.50%	119	54		
3873	19.95			89.0	6220	12	8.46%	113	73		
3874	5.45			4.6	175	14	624	2	2		
3875	0.89			1.4	307		454	38	1		

Au was determined using 1 AT fusions

Certified by Donne Hardner

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Assaying - Consulting - Representation

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Assay Certificate

2W-0858-RA1

Date: AUG-26-92

Company:BATTLE MOUNTAIN CANADA INCProject:75-JV-28Attn:WAYNE BENHAM

We hereby certify the following Assay of 79 CORE samples submitted AUG-12-92 by MARK MASSON.

Sample	Au	Au check	Au 2nd	Ag	Cu	Mo	Pb	Zn	Te	ICAP	
Number	g/tonne	g/tonne	g/tonne	PPM	PFM	PIM	PRM	PAM	PIM	Multi	
3906	Nil										
3907	Ni I										
3908	Nil										
3909	Nil										
3910	0.02										
3911	0.03										
3912	0.01										
3913	0.04										
3914	0.02										
3915	0.02					•					
3916	0.03	0.03									
3917	Nil										
3918	Nil										
3919	Nil										
3920	Nil										
3921	Nil										
3922	Ni 1										
3923	0.01										
3924	0.03	0.04									

Au was determined using 1 AT fusions

Certified by Jonna Handner

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Assaying - Consulting - Representation

Assay Certificate2W-0859-RA1Company:BATTLE MOUNTAIN CANADA INCProject:75-JV-28Attn:WAYNE BENHAMWe hereby certify the following Assay of 16 CORE samples
submitted AUG-13-92 by MARK MASSON.SampleAu Au check

Julipio	710	nu check	
Number	g/tonne	g/tonne	
3925	0.01		***************************************
3926	Nil		
3927	0.17		
3928	0.02		
3929	0.09	0.08	
3930	Ni l		
3931	0.02		
3932	Ni I		
3933	0.01		
3934	0.01		
3935	0.02		
3936	0.08		
3937	0.02	0.01	
3938	0.01		
3939	0.02		
3940	Nil		

Au was determined using 1 AT fusions

Certified by Donna Hardner

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Assaying - Consulting - Representation

Assay Certificate

2W-0868-RA1

Date: AUG-20-92

Company:BATTLE MOUNTAIN CANADA INCProject:75-JV-28Attn:WAYNE BENHAM

We hereby certify the following Assay of 12 CORE samples submitted AUG-14-92 by MARK MASSON.

Sample	Au	Au check	
INUINDET	g/tonne	g/tonne	
3941	Ni l		
3942	Ni l		
3943	Nil		
3944	Ni l		
3945	Ni l		
3946	Ni l		· · · · · · · · · · · · · · · · · · ·
3947	0.01	0.01	
3948	Ni 1		
3949	Ni l		
3950	0.01		
3951	Ni l		
3952	Ni 1		

Au was determined using 1 AT fusions

Certified by Donna Hardron

P.O. Box 10, Swastika, Ontario P0K 1T0 Telephone (705) 642-3244 FAX (705) 642-3300



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Assaying - Consulting - Representation

Assay Certificate

2W-0897-RA1

Date: AUG-26-92

Company:BATTLE MOUNTAIN CANADA INCProject:75-JV-28Attn:WAYNE BENHAM

We hereby certify the following Assay of 31 CORE samples submitted AUG-17-92 by MARK MASSON.

Sample	Au	Au check	Au 2nd	Ag	Cu	Мо	Рь	Zn	Te	ICAP	
Number	g/tonne	g/tonne	g/tonne	PPM	PIM	PIM	PIM	PIM	PFM	Multi	
3953	0.40	0.44							******		
3954	0.98	0.97	0.94								
3955	0.11										
3956	0.01										
3957	0.01										
3958	Nil	••••••									
3959	Nil										
3960	Ni l										
3961	Ni l										
3962	Nil										
3963	0.01										· · · · · · · · · · · · · · · · · · ·
3964	0.03	0.03									
3965	0.01										
3966	0.02										
3967	0.01										
3968	Nil										
3969	Ni l										
3970	Nil										
3971	Ni l										
3972	Nil										
3973	0.02										
3974	Ni l	Ni I									
3975	0.01										
3976	0.01										
3977	0.01										
3978	0.01			0.1	205	3	4	76	1		
3979	Ni l			0.1	184	4	5	81	1		
3980	Ni l			0.1	109	4	5	47	1		
3981	Ni l			0.9	507	2	5320	20	1		
3982	Ni l			0.5	107	3	29	88	. 1		
3983	0.01										

Au was determined using 1 AT fusions

Certified by Donna Handner

P.O. Box 10, Swastika, Ontario P0K 1T0 Telephone (705) 642-3244 FAX (705) 642-3300



A Division of Assayers Corporation Ltd.

Assaying - Consulting - Representation

Geochemical Analysis Certificate

2W-0307-PG1

Company: BATTLE MOUNTAIN CANADA INC

Date: MAR-24-92

RECEIVED MAR 3 0 1992

Project: 75-JV-28 Attn: WAYNE BENHAM

We hereby certify the following Geochemical Analysis of 5 PULP samples submitted MMM-DD-YY by .

Sample Number	Pb PPM	Zn PPM	MULTI	PPM	
2222 2255 2258 2386 3156	704 3200 9150 134 22	368 506 30200 111 57		1 6 1 1 1	

Certified by Lonna Hardner

P.O. Box 10, Swastika, Ontario P0K 1T0 Telephone (705) 642-3244, FAX (705) 642-3300

SWASTIKA LABORATORIES

BATTLE MOUNTAIN CAN. INC.	P.O. BOX 10, SWASTIKA ONTARIO	REPORT No. : T1309
ATTN: W. BENHAM	PHONE #: 705-642-3244 FAX #: 705-642-3300	Page No. : 1 of 1
2W-0307-B01		File No. : MR27MA
	I.C.A.P. PLASMA SCAN	Date : MAR-27-1992
PROJ: 75-JV-28	Multi Acid Digestion	

PROJ:75-JV-28

SAMPLE #	λg	A1 A5	Ba Be	Bi Ca	Cd Co	cr cu	Te Mg.	Mn Mo	Na 📴 NÍ	P Pb	Sb So	Sn Sr-	TI V (w	Zn Zr
	ppm	X ppm	ppm ppm	ppm k	рра рра	ppm · ppm	* . * }	ppm ppm	* ppm	ppm ppm	ppm ppm	ppm ppm	ppm ppm	ppm ppm	ppm ppm
3333		4 0 30	200												
2255	20 14	4 .0 20 5.2 6 5	77 4 1	15 2 0	2 10	710 63	3.0 0.77	710 <u>36</u> 620 <u>20</u>	0.04 45	280, 660	30, 5	< 107 380	430 83	< 10, 35 < 10, 5	360 45
2258	3	5.6 < 5	260 (1	25 3.7	110 22	700 54	4.5 1.0	1400 4 2	0.07 74	580 6600	70 13	< 10 440	610 110	< 10 115	07 200 P
2386	6	6.0 < 5	620 (1	35 2.6	2 35	920 110	4.5 0.91	1100 78	0.44 130	740 300	30 16	< 10 490	1900 210	< 10 15	140 120
3156	2	6.7 < 5	310 (1	25 4.4	(1 30	890 89	4.1 0.97	930 (2	0.50 72	1500 60	25, 16	< 10 520	1800 210	< 10 ²³	82 210
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A .5 gm sample is digested with 10ml of 3:1 $\ensuremath{\mathsf{HNO3/HF}}$ and further digested with HCL and taken to dryness This method is used to break down silicate materials

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BATTLE MOU 2W-0858-RA1 ATTN:W.BENHAM PROJ.:75-JV-28	INTIN				Laboratoires TSL/ASSAYERS Laboratories 780 AV. DU CUIVRE C.P. 665 ROUYN-NORANDA QUEBEC J9X 5C6 PHONE #: 819-797-4653 FAX #: 819-797-4501 I.C.A.P. PLASMA SCAN Aqua-Regia Digestion							REPORT Page N File No Date	REPORT No. : T1907 Page No. : 1 of 1 File No. : AT28MB Date : SEP-01-1992				
SAMPLE #	A1 &	Fe Ca % %	Mg Na % %	Ti Mn ppm ppm	P Ba ppm ppm	Cr Zr ppm ppm	Cu Ni ppm ppm	Pb Zn ppm ppm	V Sr ppm ppm	Co Mo ppm ppm	Ag Cd ppm ppm	Be B ppm ppm	Sb ∛ Y ppm ppm	Sc W ppm ppm	As Bi ppm ppm	Sn ppm	
3849	0.73	3.5 3.6	0.85 0.03	27, 1100	940 22	300 6	740 31	9999 100	16 330	39. (2	5 < 1	< 1 < 10	15 8	3 < 10	60 < 5	< 10	
3860	0.44	3.8 3.1	0.87 0.01	14 1200	870 20	230 7	430 28	9700 710	18 400	39 < 2	6, 6	< 1 [°] < 10	15 9	5 < 10	65 < 5	< 10	
3871	0.20	4.0 1.5	0.48<0.01	7 990	1100 12	640 6	2600 280	99999 48	13 170	44 4	30 1	< 1 < 10	90 12	2 < 10	510 25	< 10	
3872	0.10	5.0 0.53	0.34(0.01	8 610	360 9	1200 24	5300 40	9999 110	17, 85	22 2	69 (1	< 1 < 10	40 4	< 1 < 10	290 15	10	
3873	0.08	6.4 0.60	0.4740.01	7 1000	320 7	740 20	7000 48	9999 99	11 100	39 (2	79 (1	< 1 < 10	35 3	1 < 10	400/ (5	20	
3874	0.26	4.1 1.4	0.47<0.01	8 900	1100 20	290 5	230 33	900 14	12 170	33 4	6 (1	< 1 < 10	5 11	2 < 10	140 5	20	
3880	0.20	3.0 2.7	0.80 0.01	9 1300	1300 41	250 4	480 26	100 21	9 420	25) (2	3 < 1	< 1 < 10	5 14	3 < 10	35, < 5	< 10	

A .5 gm sample is digested with 2 ml of 3:1 HCL/HNO3 at 95 C for 90 min and diluted to 10 ml with DI H20 This method is partial for many oxide materials

SIGNED : 21 Forme

BATTLE MOU	JNTIN				Labox 780 РНО	ratoire AV. du cu DNE #: 819-	35 TSL DIVRE C.P. -797-4653	ASSAYI 665 rouyn- Fax	ERS Lat Noranda qu #: 819-797	orator EBEC J9X 5 -4501	cies 6		REPORT NO. : T1906 Page No. : 1 of 1			
ATTN:W.BENHAM PROJ.:75-JV-28						1.0	C.A.P. Aqua-1	PLASN Regia Diges	AA SCAN	ł			File No Date	. : AT2 : BEP	8MB -01-1992	
SAMPLE #	л1 *	Fe Ça X X	Mg Na % %	Ti Mn ppm ppm	P Ba ppm ppm	Cr Sr ppm ppm	Cu Ni ppm ppm	Pb Zn ppm ppm	V Sr ppm vppm	Co Ho ppm ppm	Ag Cd ppm ppm	Be B ppm ppm	Sb Y ppm ppm	Sc W ppm pps	As Bi ppm pps	Sn ppm
3981	0.25	0.59 0.06	0.21 0.01	6 39	150 210		530	5800 0010	B 2,50	10		< 1 C 10		• 1 • • 10	< 5 < 3 	

A .5 gm sample is digested with 2 ml of 3:1 HCL/HNO3 at 95 C for 90 min and diluted to 10 ml with DI H20 This method is partial for many oxide materials

SIGNED : 9/ Come

Kirkland Lake Project

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APPENDIX III

CERTIFICATE OF QUALIFICATIONS

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Battle Mountain (Canada) Inc.

November, 1992

Kirkland Lake Project

CERTIFICATE OF QUALIFICATIONS

I, Wayne Benham of 921 Willowdale Ave. in the City of North York in the Province of Ontario.

DO HEREBY CERTIFY:

- 1. That I am a graduate of Queen's University, Kingston, Ontario with a Bachelor of Science (B.Sc.), Geological Science, 1970.
- 2. That I have been practising my profession as an exploration geologist since 1970.
- 3. That I have personally supervised the work described in this report.

Signed:

Wayne Benham Toronto, Ontario

Dated this November 23, 1992

Battle Mountain (Canada) Inc.

November, 1992

Vol 2 of 3

Battle Mountain (Canada) Inc.

KIRKLAND LAKE PROJECT REPORT ON 1992 DIAMOND DRILLING PROGRAMMES PHASE I - JANUARY TO MARCH PHASE II - JUNE TO AUGUST

"102/103/104" GOLD ZONES AMALGAMATED KIRKLAND PROPERTY TECK TOWNSHIP, LARDER LAKE MINING DIVISION ONTARIO, CANADA

VOLUME II

DRAWINGS -PART 1

Toronto, Ontario November, 1992 W. Benham T. J. Bottrill Battle Mountain (Canada) Inc.

KIRKLAND LAKE PROJECT REPORT ON 1992 DIAMOND DRILLING PROGRAMMES PHASE I - JANUARY TO MARCH PHASE II - JUNE TO AUGUST

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VOLUME II

DRAWINGS -PART 1

Toronto, Ontario November, 1992

W. Benham T. J. Bottrill Kirkland Lake Project

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Amalgamated Kirkland Drilling, 1992

VOLUME II

LIST OF DRAWINGS

Drawing Number	Description	<u>Scale</u>
DP-003	Drill Plan	1:2,500
GL-030	Drill Plan and Simplified Geology Plan	1:2,500
DC-039-1 to 4	Section 7600 E, Hole AK92-41	1:500
DC-038	Section 7600 E, Hole AK92-41	1:500
DC-036-1 to 3	Section 8000 E, Holes AK92-39, 39A, 43	1:500
DC-006-1 to 4	Section 8050 E, Holes AK92-39A, 43, 44	1:500
DC-008-1 to 3	Section 8100 E, Holes AK92-25 Ext., 39A,43,44,45	1:500
DC-007	Section 8100 E, Hole AK92-43	1:500
DC-066-1, 2	Section 8150, Hole AK92-44	1:500
DC-010-1 to 3	Section 8190E, Hole AK92-42	1:500
DC-017-1 to 3	Section 8400 E, Hole AK92-40	1:500
DC-065	Section 8400 E, Hole AK92-40	1:500

Battle Mountain (Canada) Inc.

October, 1992

OL 3of 3

Battle Mountain (Canada) Inc.

KIRKIAND LAKE PROJECT REPORT ON 1992 DIAMOND DRILLING PROGRAMMES PHASE I - JANUARY TO MARCH PHASE II - JUNE TO AUGUST

"102/103/104" GOLD ZONES AMALGAMATED KIRKLAND PROPERTY TECK TOWNSHIP, LARDER LAKE MINING DIVISION ONTARIO, CANADA

VOLUME III

DRAWINGS - PART 2

Toronto, Ontario November, 1992 W. Benham T. J. Bottrill Battle Mountain (Canada) Inc.

KIRKLAND LAKE PROJECT REPORT ON 1992 DIAMOND DRILLING PROGRAMMES PHASE I - JANUARY TO MARCH PHASE II - JUNE TO AUGUST

"102/103/104" GOLD ZONES AMALGAMATED KIRKLAND PROPERTY TECK TOWNSHIP, LARDER LAKE MINING DIVISION ONTARIO, CANADA

VOLUME III

DRAWINGS - PART 2

Toronto, Ontario November, 1992

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VOLUME III

LIST OF DRAWINGS

Drawing Number	Description	<u>Scale</u>
DL-008	Vertical Longitudinal Section "102"/"103"/"104"	
	Gold Zones	1:2,500
DL-006	Vertical Longitudinal Section "102" Zone	1:2,500
DL-007	Vertical Longitudinal Section "103" Zone	1:2,500
DL-010	Vertical Longitudinal Section "104" Zone	1:2,500
DL-009	Vertical Longitudinal Section "105", "106"	
	"A-5, -6" and "107" Zones	1:2,500
DC-045	Section 7350E	1:2,500
DC-046	Section 7500E	1:2,500
DC-047	Section 7600E	1:2,500
DC-048	Section 7900E	1:2,500
DC-049	Section 8000E	1:2,500
DC-050	Section 8050E	1:2,500
DC-051	Section 8100E	1:2,500
DC-052	Section 8150E	1:2,500
DC-053	Section 8200E	1:2,500
DC-054	Section 8250E	1:2,500
DC-055	Section 8300E	1:2,500
DC-056	Section 8350E	1:2,500
DC-057	Section 8375E	1:2,500
DC-058	Section 8400E	1:2,500
DC-059	Section 8425E	1:2,500
DC-060	Section 8450E	1:2,500
DC-061	Section 8500E	1:2,500
DC-062	Section 8600E	1:2,500
DC-063	Section 8700E	1:2,500
DC-064	Section 8800E	1:2,500
DC-067	Composite Cross-Section "102" Gold Zone	1:2,500
DC-068	Composite Cross-Section "103" Gold Zone	1:2,500
DC-069	Composite Cross-Section "104" Gold Zone	1:2,500
DC-073	Composite Cross-Section "102/103/104"	-
	Gold Zones With Significant Intersections	1:2,500



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	SECTION 7600E HOLE AK92-41							
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SECTION 7600E HOLE 4K92-41

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M. Masson / W. Benham B.H. Madill , Tech. DC-039-4 (SHEET 4 of 4) April, 1992 1:500 0 5 10 20 40 metres VYn

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<u>NOTE</u>; Holes AK92-39A and 43 are plotted according to downhole directional survey data. (Sperry Sun) Due to hole deviation downhole measurements will appear foreshortened

Collar co-ordinates and elevations are not surveyed

-350 m.

MAGNETIC DECLINATION = 13°00'W. <u>-400 m.</u>

SECTION 8050E

HOLES AK92-39A, AK92-43 and AK92-44 M. Masson/W. Benham. B.H. Madill, Tech. DC - 006 - 2 (SHEET 2 of 4) Revised Sept., 1992

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- <u>500 m.</u>

-550 m qtz. -guartz fol. -foliated bl. -bleached alb -olbite Collar co-ordinates and elevations are not surveyed.

> -600 m_ AK92-40 4

MAGNETIC DECLINATION. = 13 °00 'W. . ~650m_ SECTION 8400E

HOLE AK92-40 M. Masson, W. Benham. B.H. Madill, Tech. May, 1992 DC-017-3 (SHEET 3 of 3) 1:500 -700 m



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		30	29 [⊡ <u>0.22</u>
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