		1.0			QUEENSTON I	MINING INC									
	Drill Ho	ite:	AK-03-02		DIAMOND DRIL	L HOLE RECORD	1					Pā	ıge: 1	of 8	
	Property Northing	:	AMALGAMATED KIRKLAND 9600.00												
	Easting: Elevatio		7600.00 328.00		Tests ***	*** Dip T					Started:	а.		11, 2003	
	Collar A	zimuth (Grid)	.00	Depth A	zi. Dip	Depth Azi	. Dip			Date (	Complete	1:	March	14, 2003	
	Collar D		-50.00	8.0	-50.0 50.0	182.0	47.0	)		Drille Core S			BENOIT		
	Hole Len		s 341 degrees True) 215.00	92.0	50.0						al left	in hole	NQ NX CAS	ING	
	Date Pri	nted:	19 Apr, 2004							Core I Logged	Location d by:	:	Upper FR Plo	Canada S: ege	ite l
Descer	me.			Coology					Exem	Te	Lon	C ]	MAL.		
From (m.)	TO (m.)			Geology				Sample No.	From (m.)	ТО (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
		SUMMARY LOG													
.00	2.40	OVERBURDEN													
2.40	68.68	SYENITE													
68.68	82.00	CONTACT ZONE	:												
82.00	83.20	FAULT ZONE													
83.20	131.80	MAFIC SYENIT	Έ												
131.80	140.73	ALTERED SYEN	IITE CONTACT ZONE												
140.73	1 <b>47.7</b> 5	LAPILLI TUFF	,												
147.75	148.25	LARDER LAKE	BREAK												
148.25	157.30	CONGLOMERATE	TIMISKAMING GROUP												
157.30	165.11	SYENITE													
165.11	174.95	GREYWACKE													
174.95	181.35	MUDSTONE													
181.35	190.83	GREYWACKE													
190.83	215.00	CONGLOMERATE													



From	То	Geology	Sample	From	То	Len	Sul	AU	AUl	AU2
(m.)			No.	(m.)	(m.)	(m.)	olo	OZ/T	OZ/T	ppb
(	(,									

#### .00 2.40 OVERBURDEN

The drill was set up in a tag alder swamp. Overburden is mud and sand.

## 2.40 68.68 SYENITE

As with AK-03-01, the hole was collared at the north boundary of the Murdock Creek Stock in coarse grained syenite. Overall, the syenite is coarse to very coarse grained as defined by light pink feldpar crystals to 1.5cm in a groundmass of 20-30% dark green amphibole laths, black biotite and magnetite. The colour over the first 3m which are relatively fresh, is medium greyish pink, however, by 5.5m, there is a gradual change to brick orange. This results from hematization?/ alteration of the feldspars to a bright orange colour and bleaching of the mafic minerals to light grey/ dull white. The alteration appears to be pervasive and may be related to a strong fault further down the hole. The syenite is massive and homogenous with no obvious fabric development.

There is very little veining or carbonate alteration of the syenite, however, a few tiny white grains in the feldspars turn blue with ferricyanide solution. At the same time, rare late fractures fizz with acid indicating late calcite in chlorite carbonate slips. Locally, as at 8.43-9.27m and 15.12- 16.55m, the host is mildly fractured with the fractures filled by 3% and 8% dull grey quartz accompanied by 0.5 and 1% sulphides, respectively. Otherwise, mineralization runs trace. The magnetic susceptibility is high at the start, 14- 21, but decreases in the orange altered syenite to a lower range of 1- 19 with an average of about 6. Less altered sections seem to carry slightly higher values indicating, perhaps, that there is a partial conversion of primary magnetite to hematite and pyrite. Throughout the hole, there are locallized chloritic fractured zones, some at low angles TCA that have caused short intervals of broken core.

- 41.00 53.00 Syenite In this interval, the degree of hematization decreases revealing the fresher grey pink phase. As expected, there is an abrupt rise in the MS values to a plateau of about 14, reflecting the relict magnetite. Beyond, there is a slight increase in ankerite content in the matrix.
- 64.35 64.45 Fault Zone A tight Carbonate Chlorite Fault @ 35 TCA actually forms the core of the zone. The walls comprise dull grey to dark purple grey quartz carbonate gash veins with 1% sulphides.
- 67.70 68.40 Broken Blocky Core There is no obvious major structure over this interval except for low angle chlorite slips, that would account for the broken and ground core.

68.68	82.00	CONTACT ZONE								
			21636	79.47	80.28	.81	TR	.000	.000	nil
		Beginning with a few fine grained brick orange lenses, the grain size in the	21637	80.28	81.55	1.27	TR	.000	.000	nil

21633	8.43	9.27	.84	0.5	tr	.000	2
21634	15.12	16.55	1.43	1	tr	.000	14
21635	64.10	64.70	.60	0.5	.001	.000	26

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Drill Hole AK 03 02

Drill	Hole	AK	03	02	Page:	3 Of 8
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Len

(m.)

Sample

NO.

From

(m.)

ΤO

(m.)

ΤO (m.) (m.)

From

Geology

syenite gradually decreases to about 75.50m, at which point, in BBC, the host becomes contaminated with mafic inclsions. The leading section is bright brick orange, medium grained near the start, becoming finer grained down hole towards the mafic zone. The contact zone appears to be defined by two parameters. a primary chilled contact phase that culminates in a lower contact aureole, mafic inclusion bearing phase that may be related to the following strong break.

MS values are generally lower in the contact zone, averaging approximately 0.14 from 72.5-82.00m. As mentioned above, the host is weakly ankeritic to this point, but, at 77.5m, veins and matrix become calcitic as well. Within a few metres however, all carbonate alteration is calcitic. Lower in the contact zone, the host becomes well fractured/ crushed up to the fault described below.

- 74.64 77.00 Broken Blocky Core The core here is badly broken and recovered as small partly ground chunks. Footage blocks indicate that approximately 1.5m of core is unaccounted for/ lost. There is no gouge or prominent structure, however, the fracturing is fairly intense, suggesting this may be the cause for the bad ground.
- 77.94 82.00 Contact Zone Broken Blocky Core This section contains most of the mafic inclusions (77.94- 80.20m, 81.23- 81.43m) as well as a number of sections of ground/ BBC (78.20 79.00m, 79.90- 81.10m) that are conjugate structures or faults parallel to the main fault. The upper BBC/ structure occurs on a Porous Carbonate Breccia Fault @ 35 TCA followed by slivered and gougy well crushed host; the lower zone starts with a Strong Crush Chlorite Fault @ 45 TCA and ends with gouge and chips on a series of Chlorite Gouge Faults/Slips @ 20 TCA. The mafic inclusions are moderately to well fractured, medium green grey, massive, and to medium grained/ textured. Contacts between the fine inclusions range from sharp to irregular/ embayed to rafted inclusions of one in the other. All are overprinted and modified by the crushing. The lower 60cm adjacent to the main fault/ contact, comprises dirty orange, moderately fractured, fine grained syenite with a coarse splash/ streak of chalcopyrite at 81.82m.

#### 82.00 83.20 FAULT ZONE

Leading the FAZ are a series of Gouge Mud Chlorite Faults @ 50 TCA in dark green grey mylonite over 14cm. This is followed by an 8cm wide massive pale pink calcite vein, also @ 50 TCA. The remainder of the FAZ costitutes a massive, medium textured, cataclastic/ mylonite zone in which 1-7mm size pink feldspar clasts/ grains are enclosed in a dark grey/ black fine grained matrix. The mylonite resembles a finer grained equivalent of the following mafic syenite. The zone hosts trace sulphides and is calcitic.

21639	82.03	83.00	.97	TR	tr	.000	3
21640	83.00	84.00	1.00	TR	.000	.000	nil

81.55 82.03 .000 9 21638 2 .48 tr

Sul

욹

AU

OZ/T

AU1

OZ/T

AU2

ppb

				Drill Hole AK 03-02				Page: 4 of 8			
From (m.)		Geology	Sample No.	From (m,)	TO (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb	
83.20	131.80 MAFIC SYENITE		21641	84.00	85.19	1.19	TR	.000	.000	nil	

The first metre of the mafic svenite appears to range back and forth between lenses of mylonite and fine to medium grained contact phase syenite. As mentioned above, they are similar in appearance, the mylonite having rounded pink clasts and the syenite, a variety of sizes of tabular grains; contacts between the two may be sharp or transitional. From 84.00 to 84.45m are contorted to foliated and calcite veined @ about 60 TCA. This abuts against a 10cm Mud Gouge Fault/ Zone @ 60 TCA. The massive, black, fine grained contact phase continues for another 0.65m at which point the svenite becomes medium grained. By 86.5m, the syenite has reached the coarse grained stage that it maintains throughout. It is charactertized by: a coarse grain size; massive homogenous nature; medium orange/ pinkish grey colour; and moderate degree of alteration in which the amphiboles?, comprising 40% of the groundmass, have been altered to light blue grey chlorite? and calcite. Conspicuous throughout the section are patches of black biotite speckles. Fine to medium grained orange lenses to 30cm occur intermittently down hole. Excepting the biotite, the syenite bears a strong resemblance to the augite svenites found in the mines in Kirkland Lake.

Mineralization consists of random scattered pyrite grains that amount to trace overall. As mentioned above, calcite has partly replaced the mafic grains in the groundmass and also fills the few dull white calcite streaks and veinlets that cut the host. MS values traverse a wide range between 7 and 43, averaging about 27.

115.00 131.80 Altered Syenite - Beginning at about 115m, the syenite becomes progressively more microfractured. The massive coarse grained texture, mineralogy and pink grey colour are relatively well preserved to 124m although by this point the microfracturing has begun to fracture the orange pink feldspar crystals and groundmass. Beyond, the feldspars become hematized to a brick orange colour and their percentage/ content in the host increases to about 70%. By the end of the interval, much of the texture is obliterated by the crushing in conjunction with the fining of the grain size. Despite the increase in deformation and alteration, the sulphide content is nil to trace. At 124m, there is a transition in the carbonate alteration from calcite to ankerite with both types coexisting over about a metre. Beyond, apart from rare late pink calcite veinlets, ankerite forms the dominant carbonate. MS values decline steadily from 20 in the fresher syenite to 1, at 127m and gradually rise again to 21 near the end.

### 131.80 140.73 ALTERED SYENITE CONTACT ZONE

At 131.80, there is a transition to a finer grained and more deformed phase of the syenite. Locally, it reverts to a medium grain size but overall it is fine grained, grungy light to medium orange coloured, crushed/ microfractured to 137.5m and then weakly foliated @ 45-50 TCA to the

21642	132.21	133.09	.88	TR	tr	.000	14
21643	137.27	138.10	.83	TR	tr	.000	5
21644	138.10	139.05	.95	0.5	.002	.000	60
21645	139.05	140.00	.95	0.5	.001	.000	31
21646	140.00	140.73	.73	TR	.001	.000	39

			Drill Hole AK 03 02 Page:				age: 5	of 8	
From To (m.) (m.)	Geology	Sample No.			Len (m.)		AU OZ/T	AU1 OZ/T	AU2 ppb

contact. The overall impression is that of an increase in deformation down hole to the point where it approaches mylonitic texture going into the next unit. In parts of the strongly microfractured zones, the original synitic textures have been virtually obliterated. Staining indicates that the groundmass has been strongly ankeritized. There is also an increase in the sulphide content, ranging up to 0.5% over the lower 3m. The magnetic susceptibility shows a steady decline from 15 to 2 over the same interval. The trailing contact is on a narrow tight chloritic fault @ 55 TCA.

132.45 132.48 Fault Zone - This is more of a 1/4 inch carbonate quartz chlorite vein @ 25 TCA then a fault. A purple black conjugate? vein joins the main vein/ structure @ about 30 degrees.

## 140.73 147.75 LAPILLI TUFF

It is difficult to determine the identity of the protolith. According to geological interpretation by Battle Mountain in 1990, the hole should intersect the green carbonates of the Larder Lake Break. The previous hole (AK-03-01) encountered a 4m pyritic silicified zone, a 10m tuff horizon and 5m mineralized felsite, before intersecting the lapilli tuff. It further crossed 13m of flows and tuff followed by a 4m green carbonate unit before being terminated by the Larder Lake Break. Roughly 40m of this sequence is missing in the current hole, including all of the mineralization.

Although strongly tectonically deformed (protomylonite) @ 55-60 TCA, the lensoid shapes of many of the carbonatized clasts and slight variations in colour tones imply a primary fragmental texture. Light beige, orange and grey colours define the clasts which are stretched into a 3-5:1 ratio within a dark- medium green, chloritic (and weakly sericitic), foliated matrix. Local creamy white and pale beige/ orange, massive but fractured lenses from 2-15cm may represent more massive/ competant felsic tuff bands.

Ankeritization of the matrix and fragments remains strong throughout the interval, while sulphide mineralization ranges from trace to anomalous but <0.5%. MS values are unusually constant at 0.30. The lapilli tuff ends at the LLB described below.

146.32 149.30 Broken Blocky Core · This section encompasses the hanging and footwall fracturing centred on the Larder Lake Break. It appears as if the drillers may have mixed/ reversed some of the broken core within the interval.

#### 147.75 148.25 LARDER LAKE BREAK

The actual break is not readily identifiable but probably falls on the gouge and ground core section. The dip cannot be determined from the gouge but is probably refected by the fracturing in the walls @ approximately 55 TCA. Although the core is broken all around, the actual structure seems to be focussed over this interval of which half is lost/ ground.

21647	140.73	141.77	1.04	TR	.004	.000	141
21648	141.77	143.00	1.23	TR	.014	.000	474
21649	143.00	144.29	1.29	TR	.006	.000	206
21650	144.29	145.27	.98	TR	.001	.000	38
21651	145.27	146.44	1.17	TR	tr	.000	15
21652	146.44	147.40	.96	TR	.001	.000	31
21653	147.40	148.76	1.36	TR	.001	.000	27

			:	Drill Hol	02	Pa	ge: 6 of 8				
From (m.)	TO (m.)	Geology	Sample No.	From (m.)	ТО (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb	
148.25	157.30	CONGLOMERATE TIMISKAMING GROUP Beyond the LLB, the host becomes strongly altered greywacke with gritty and conglomeratic lenses of the Timiskaming Group. Overall, the wacke is bleached to a light lime to olive green colour which results from strong sericitization and carbonatization of the matrix. The wacke is fine grained and massive but is locally fractured/ crushed and moderately foliated with the fabric trending at 70-85 TCA. The pebbly lenses are polymictic and include granitic/ syenitic, jasper and green carbonate (fuchsite altered) clasts as well as various volcanic and sedimentary pebbles. The main carbonate mineral is ankerite; sulphides are trace. MS values range between 0.11 and 0.36. 149.00 149.14 Quartz Vein Zone - This is a very weak zone with 50% creamy beige quartz carbonate patches and veins @ about 80 TCA with trace sulphides.	21654 21655 21656	148.76 156.20 157.14	157.14	.91 .94 1.08	TR TR TR	.000 .000 .001	.000 .000 .000	nil nil 40	
157.30	165.11	SYENITE In contrast with the Murdock Creek syenite, this intrusive more closely resembles the syenite porphyries of the main Kirkland Lake mines. It is fine- medium grained, massive, and light to medium orange pink coloured. Being more competent than the sediments, it is mildly to moderately microfractured, imparting a granular type texture. In places 1-2mm size dull grey feldspar pheonocrysts are visible with a lense. Contacts are difficult to pinpoint but appear irregular, sharp @ 60/ 75 TCA. The host is cut by 4% fine thready quartz ankerite veinlets and streaks; the groundmass is also moderately ankeritic. Mineralization is nil to trace; the susceptibility averages in the mid 0.20's with a local spike to 0.53.									
165.11	174.95	GREYWACKE The interval begins with 1m of very fine grained, lime green altered mudstone that contains a delicate bedding defined by fine light grey lines that highlight primary slumping/ folding features. Through a foliated contact, the remainder of the zone becomes fine grained, massive greywacke	21657 21658	165.19 173.68		.83 .96	TR TR	.001 tr	.000	24 3	

carbonate veinlets (<0.5%) cut the host; mineralization is trace except for very minor pyrite streaks near the start. 173.74 173.80 Fault Zone - Although it could also be called a quartz carbonate vein, chlorite slips and crushing @ 35 TCA indicate a structure associated with the veining. Pyrite clusters and

disseminated grains amount to about 3%.

with thick gritty sections and minor pebbly lenses. Alterationsericitization and ankeritization continues strong, colouring the rock a drab greyish olive tone. Apart from two weak structures described below, there is no deformation of the wacke. A few spidery dull olive grey quartz

			Drill Ho	ole AK 0	3 02	65	nge: 7	of 8	
From To (m.) (m.	Geology	Sample No.	From (m.)	T0 (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
	174.28 174.34 Fault Zone This interval comprises a Quartz Carbonate Chlorite Fault @ 45 TCA with several parallel slips, crushing and trace sulphides.								
174.95 181	35 MUDSTONE The leading contact is sharp, natural and embayed/ shredded @ about 50 TCA with a few shards of mudstone in the wacke. Overall, the unit is very fine grained, light grey olive coloured with light- dark grey very fine grained laiminae and bands defining bedding. These highlight the fact that the bedding is contorted locally but generally trends @ 70 TCA. The lower contact, which is chopped up by sericite slips, was taken at the first sandy wacke lense @ 45 TCA. Carbonate alteration of the matrix and veining, the latter which forms 1% of the interval, is ankerite. Mineralization is confined to a few scattered grains of pyrite in the veins and matrix. MS values range between 0.13 and 0.31.	21659	177.8:	2 178.71	.89	TR	.002	.000	57
181.35 190	B3 GREYWACKE Greywacke and mudstone are interbedded over the first half metre before the host reverts exclusively to a fine grained massive wacke that contains abudant gritty and pebbly lenses, particularly down hole. The same light greyish olive colour of the mudstone resulting from the moderate alteration continues into the wacke. As with the previous sedimentary units, the matrix remains ankeritic; carbonate quartz veins and streaks to 3cm wide, which amount to about 1% overall, are also ankeritic. Sulphides associated with these veins are trace. The susceptibility falls within a narrow range of 0.08- 0.11 except in the gritty lenses where it rises to 0.23. The lower contact was taken at the start of a massive conglomerate unit.188.72 188.79 Fault Zone - This is a fairly strong Quartz Carbonate Chlorite Shear Fault @ 60 TCA that contains a few blebs and grains of pyrite and chalcopyrite.	21660	188.5	5 188.93	.38	0.5	.002	.000	58
190.83 215	OO CONGLOMERATE As typical Timiskaming conglomerate, the host is polymictic, clast supported with greywacke matrix and lenses and even contains a mudstone lense at 198.68- 199.60m. Bleaching and sericitization of the host to a medium grey green continue to about 203.00m, at which point the overall aspect changes, the colour becoming medium to dark green grey in conjunction with a noticable increase in the syenitic/ trachytic component of the pebbles. In fact, there is a corresponding increase in MS values from 0.20- 0.38 prior to 203m and 15.0- 35.0 below. Although the matrix and veining remain protecting threadent there is an increase form 18 to apprecimentative 28 below	21661	211.5	7 212.20	.63	TR	.001	.000	23

ankeritic throughout, there is an increase from 1% to approximately 3% below 203m. The style also changes whereby the lower carbonate occurs, not only as veinlets and streaks, but also as matrix and pressure shadows around some of

	Drill Hole AK-03-02 Page: 8 of 8								
From To (m.) (m.)	 -		To (m.)	Len (m.)		AU OZ/T	AU1 OZ/T	AU2 ppb	

the clasts. Mineralization is trace overall, but, a few sulphide pebbles were noted at 207.65 and 208.30m and spots of chalco in a 1cm carbonate vein at 211.63m.

202.80 202.84 Quartz-Carbonate Vein Zone - This is a minor dull grey wavey vein zone @ 55 TCA.

215.00 End of hole - The hole ends in polymictic conglomerate with the high alkalic pebble content.

					QUEENSTON	MINING INC								
	Drill Ho	le:	AK - 03 - 03	г		L HOLE RECORD					D.	age: 1	of 16	
	Property	:	AMALGAMATED KIRKLAND	1	JIAHOND DRIL	E HOLE RECORD					P	age: 1	01 10	
	Northing		9700.00											
	Easting:		8600.00											
	Elevatio	n:	309.00	*** Dip	Tests ***	*** Dip T	ests ***		Date §	Started:		Feb 24	, 2003	
				Depth Az	zi. Dip	Depth Azi	. Dip		Date (	Complete	d:	March	7, 2003	
		zimuth (Grid)	.00											
	Collar D		-50.00	6.5	-48.0	270.0	-49.5			ed by:		H & S		
			s 341 degrees True)	90.0	-48.0	360.0	-48.0		Core S			NQ		
	Hole Len	gth:	422.00	180.0	48.0					ial left Location				1
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From	TO (m.)			Geology			Sample	From	То	Len	Sul	AU	AU1	AU2
(m.)	(m.)						No.	(m.)	(m.)	(m.)	Þ	OZ/T	OZ/T	ppb
		SUMMARY LOG												
.00	6.50	CASING												
6.50	7.87	DIABASE MAFI	C INTRUSIVE											
7.87	9.31	ULTRAMAFIC FI	LOW											
9.31	40.00	FELSITE												
40.00	41.38	CARBONATED ZO	ONE GREEN CARBONATE Z	ONE										
41.38	77.31	FELSITE												
77.31	87.20	GRANITE												
87.20	123.63	FELSITE												
	136.84		KE											
		LAPILLI TUFF												
160.09		TUFF LAPILLI												
246.13	262.26	CARBONACEOUS	SEDIMENTS											
262.26	300.44	LAPILLI TUFF	CARBONACEOUS SEDIME	NTS GREYWACKE										
300.44	312.09	BLONDE ALTERA	ATION ZONE											
312.09	315.40	CONGLOMERATE	CARBONATED ZONE											
315.40	332.30	TRACHYTE												

315.40 332.30 TRACHYTE

332.30 343.23 TUFF TRACHYTE



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				Drill Ho	ole AK-0	3 - 0 3	£	age: 2	of 16	
From (m.)	To (m.)	Geology	Sample No.	From (m.)	ТО (m.)	Len (m.)		AU OZ/T	AU1 OZ/T	AU2 ppb

343.23 352.14 TRACHYTE

352.14 361.30 TUFF GREYWACKE END OF DEFORMATION ZONE

- 361.30 409.78 GREYWACKE TUFF
- 409.78 422.00 TRACHYTE

From	То
(m.)	(m.)

Geology

	DIII M	DIE AK-U	13-03	Ŀ	age: s	01 10	
Sample	From	То	Len	Sul	AU	AU1	AU2
No.	(m.)	(m.)	(m.)	÷	OZ/T	OZ/T	ppb

2 . 6 24

## .00 6.50 CASING

The overburden contains a number of boulders as evidenced by the gravel/ rubble/ ground core recovered at the start.

## 6.50 7.87 DIABASE MAFIC INTRUSIVE

The first solid core is massive, fine grained, dark brownish grey and intrusive. The leading contact is sharp, irregular @ about 35 TCA and is attached to a short broken/ rubbly section of talc chlorite ultramafic in which the hole is actually collared. The lower contact is chilled, sharp and curved @ 20 TCA. MS values range between 1.82 and 2.82; sulphides are trace. The few visible fine carbonate veinlets are calcitic.

#### 7.87 9.31 ULTRAMAFIC FLOW

Through the sharp contact above, there is an abrupt change into a short, dark blue grey, soft/ talcose ultramafic section. The upper part of the zone appears massive, the middle and lower parts exhibit a breccia type texture, possibly polyhedral jointing, which is enhanced by fine lacey white ankerite veinlets that seem to rim the polygons. In addition, there are small faint nests of spinifex texture throughout the interval indicating a komatiitic affinity. With the change to an ultramafic host, there is a corresponding change to ankerite veining and an increase in the susceptibility to 9; there are no significant sulphides. The lower contact is sharp but irregular @ about 55 TCA.

#### 9.31 40.00 FELSITE

The term felsite is used to categorize this unit although the overall medium grey colour of the relatively unaltered sections would indicate a more intermediate composition. However, the rock is hard, does not scratch, massive, fine grained, and, in places, is faintly porphyritic textured. The phenocrysts are difficult to distinguish, appearing poorly formed or corroded and blending well into the dull grey groundmass. They may represent a primary porphyritic section or albitization.

Fracturing, which is weak to moderate throughout, is enhanced by yellowish buff alteration/ bleaching that highlights the fractures and then migrates into the walls forming halos, and, eventually, large patches. In some cases, quartz veins or sweats form the focus of the alteration. Invariably, the sulphide (pyrite) content increases within the limits of the bleaching to the point where, between 24.50 and 25.27m, it reaches 1-2%. Overall, it is anomalous but less than 0.5%. Ankerite continues as the main carbonate mineral and also becomes more pervasive in the groundmass. The MS values fall consistently within a narrow corridor of 0.09 to 0.21. The intensity of fracturing and microfracturing increases downhole.

26403	22.58	23.55	.97	TR	.002	.000	71
26404	23.55	24.50	.95	0.5	.001	.000	39
26405	24.50	25.27	.77	1	tr	.000	17
26406	25.27	26.02	.75	TR	.001	.000	36
26407	26.02	27.26	1.24	0.5	.001	.000	31
26408	31.51	32.43	.92	TR	.000	.000	nil
26409	32.43	32.92	.49	0.5	.002	.000	62
26410	32.92	33.47	.55	0.5	.001	.000	21
26411	33.47	34.67	1.20	TR	.001	.000	51
26412	37.38	38.34	.96	0.5	.001	.000	24
26413	38.34	39.45	1.11	0.5	tr	.000	7
26414	39.45	40.00	.55	TR	.000	.000	nil

		1	Drill Ho	le AK-0	3 0 3	Pa	ige: 4	of 16	
From To (m.) (m.)	Geology	Sample No.	<pre>From (m.)</pre>	TO (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
	26.80 26.85 Quartz Vein Zone - This has the appearance of a Quartz Breccia Fault @ 20 TCA that is characterized by angular fragments of altered host in a chlorite rimmed dull grey quartz vein. The vein and walls are mineralized with 0.5% pyrite over 25cm.								
	32.49 32.53 Fault Zone - This is another Quartz Crush Fault @ 25 TCA with weak shearing and possible minor graphite; a few spots of chalcopyrite were also noted in the zone. Moderate alteration surrounding the structure is mineralized with 0.5% pyrite.								
	32.67 32.87 Felsic Dyke - The dike is surrounded on both sides by 20cm crushed chloritic zones that extend to the contacts which are themselves crushed and brecciated @ 25/ 50 TCA. In contrast with the host felsite, the FD is mottled pinkish beige coloured and moderately microfractured with 1% pyrite.								
40.00 41.38	CARBONATED ZONE GREEN CARBONATE ZONE								
	The lower 25cm of the felsite are well altered to mottled greenish beige adjacent to a sharp contact @ 35 TCA. The leading 15cm of the carbonated ultramafic appear to be tectonically/ cataclastically deformed. This is followed to 41.00m, by white quartz carbonate vein zones to 4cm wide @ 35/ 15 TCA that flank a central massive core and that constitute about 15% of the entire interval. The upper portion of the ultramafic is light to medium grey whereas below the carbonate quartz vein at 41.00m, it becomes weakly fuchsitic with a faint emerald green colour. The lower contact is partly ground flat along a 2cm caarbonate chlorite quartz vein at a high angle (70?) TCA. The matrix and veining are strongly ankeritic and contain only a few isolated pyrite grains. MS values range between 0.18 and 0.34. There are several sections around the quartz carbonate veins that are ground to a fine gravel, which when combined with measurements from the blocks, indicate a loss of 10- 20cm of core.	26415 26416		41.00 41.38	1.00 .38	TR TR	.000 tr	.000	nil 3
41.38 77.31	FELSITE								
	At this point, there is a return to the felsitic unit similar to that described previously at 9.31m. The leading 0.5m is well fractured beside a Crush Chlorite Fault @ 6 TCA. As with the upper felsite, moderate deformation is highlighted by light olive beige/yellow alteration that migrates out from the walls of the fractures to pervasively alter the host; quartz sweats and veins sometimes form in the areas of most intense fracturing and microfracturing. The host felsite, where relatively fresh, is massive, medium grained, and speckled medium grey with a distinctive granular/ equant grained feldspathic groundmass. Overall, it appears intermediate in composition, but there are no obvious mafic minerals that impart the darker colour; it seems to originate with the felspathic groundmass. In the beached sections, light coloured acicular and tabular grains are visible as interstitial material. The alteration products probably represent a mix of carbonate (ankerite), sericite, quartz and	26417 26418 26420 26421 26422 26423 26424 26425 26426 26426 26427 26428 26429 26430	51.46 52.42 53.50 54.50 55.14 56.00 57.53 58.25 59.00 59.85 60.72	$\begin{array}{c} 42.54\\ 52.42\\ 53.50\\ 54.50\\ 55.14\\ 56.00\\ 57.00\\ 57.53\\ 58.25\\ 59.00\\ 59.85\\ 60.72\\ 61.42\\ 62.42\end{array}$	1.16 .96 1.08 1.00 .64 .86 1.00 .53 .72 .75 .85 .87 .70 1.00	TR TR 0.5 1 0.5 1 2 1 0.5 0.5 TR TR	tr tr tr .002 tr tr .000 .000 .001 .000 tr .001 .000 tr	.000 .000 .000 .000 .000 .000 .000 .00	10 10 7 57 12 3 nil nil 21 nil 29 nil 5

albite?. Dull grev and white guartz patches, veins and cherty veins account for about 12% of the interval. Sulphide mineralization ranges between anomalous and 0.5% with local massive concentrations noted in veins up to 0.5cm in width at 54.95 and 57.06m. MS values consistently fall below 0.10; and, as mentioned, ankerite is the dominant carbonate miineral.

- 51.46 64.90 Blonde Alteration Zone For lack of a better label, the strongest altered portion of the felsite was designated as a alteration zone. The contacts at both ends are blonde gradational into less deformed and altered felsite as is a section in the middle from 53.50 to 54.50m. The two sulphide veins plus approximately 0.5% disseminated pyrite as well as the bulk of the quartz occur within this interval. In fact, a zone from 57.00 to 59.00m contains about 50% guartz and 1-2% disseminated and streaky sulphides (pyrite).
- 68.27 77.31 Blonde Alteration Zone Another well altered zone, it is similar to the upper BAZ but is less strongly guartz veined and mineralized. It does, however, become more intensely altered and silicified down hole, to the extent that much of the primary texture is obliterated and the rock becomes fine textured. A short section between 71.75 and 72.23m, is fine grained, weakly foliated, and contains quartz eyes or grains. It represents a definite change in lithology, probably a greywacke/ arkosic inclusion with sharp contacts @ 40/ 50 TCA. The overall sulphide content is <0.5%, but there are localized enrichments to 0.5% over 20cm(+/-).

## 77.31 87.20 GRANITE

Although there is essentially no change in host lithology, there is a drastic difference in the appearance of this interval. The contact appears to be gradational over 30cm, and related to two weak 1-2mm carbonate veinlets @ 40 TCA around which the rock becomes more pink altered, until by 77.63m, the colour has completely changed to light pastel pink and pinkish orange. The pastel colours are broken up by 5% black specks, patches, streaks and fracture fillings composed mainly of pyrite/ marcasite with accesory chlorite and tiny mm scale acicular grains patches/ clusters of a silver grey metallic mineral (moly?, specularite?). The faint dark porphyritic texture persists intermittently through the interval and into the following unit, indicating another change in the character of the felsite rather then lithology. It imparts a weak medium grained texture to the rock which, along with the colour, were the reasons for labelling the unit as a 'granite'.

The host is more strongly/ pervasively silicified then the previous felsitic interval leaving less matrix material to be carbonatized although the white streaks in some of the quartz veins are ankeritic. The MS values remain below 0.10 and sulphides (pyrite and marcasite - black streak) average 2-3%. The lower contact is gradational, in and out of the pink phase over the

	DITT NOT	e AR-US	- 0.5	Page: 5 OI 10					
Sample No.	From (m.)	То (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb		
26432	63.36	64.20	.84	TR	tr	.000	15		
26433	64.20	64.90	.70	TR	tr	.000	10		
26434	68.27	69.52	1.25	TR	.000	.000	nil		
26435	69.52	70.70	1.18	TR	.000	.000	nil		
26436	70.70	71.75	1.05	TR	tr	.000	7		
26437	71.75	73.10	1.35	TR	.003	.000	94		
26438	73.10	74.29	1.19	0.5	tr	.000	12		
26439	74.29	75.64	1.35	0.5	tr	.000	9		
26440	75.64	76.78	1.14	0.5	tr	.000	9		
26441	76.78	77.63	.85	1	tr	.000	7		

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26442	77.63	78.50	.87	2	.001	.000	21
26443	78.50	79.00	.50	5	tr	.000	14
26444	79.00	80.00	1.00	2	.000	.000	nil
26445	80.00	81.00	1.00	3	tr	.000	5
26446	81.00	82.00	1.00	1	.000	.000	nil
26447	82.00	82.62	.62	1	.001	.000	21
26448	82.62	83.24	.62	0.5	tr	.000	9
26449	83.24	83.60	.36	2	.001	.000	39
26450	83.60	84.75	1.15	1	tr	.000	2
26451	84.75	86.00	1.25	1	tr	.000	7
26452	86.00	87.00	1.00	1	.000	.000	nil
26453	87.00	87.40	.40	2	.001	.000	33

		Drill Ho	le AK-03	03	Page:	6 of 16	
/	Sample No.					AU1 OZ/T	AU2 ppb

From To (m.) (m.)

trailing 3m but the 'granite' ends on a quartz chlorite graphite moly slip @ 60 TCA.

Geology

- 81.57 83.24 Mafic Intrusive As with most lithologies in the hole, this is not a typical MI. In fact, the interval is a series of narrow dikes, some with chilled contacts, that range in size from a few centimeters to 40cm in width. Contacts are sharp and steep, generally @ about 75 TCA. The overall colour of the dikelets is light green and the MS values are about 0.25. They are not altered to the same degree as the host but do contain trace very fine sulphides.
- 82.47 82.54 Quartz Vein Zone This is a creamy white quartz vein with fuzzy, but relatively sharp contacts @ 70 TCA which are partly defined by minute trains of black graphite? and slight brecciation.
- 83.37 83.43 Quartz Vein Zone This is a crushed medium to dark grey quartz moly- graphite vein @ 45/ 55 TCA. The walls are well silicified for 10- 20cm up and down hole with 1% sulphides.

# 87.20 123.63 FELSITE

Apart from a short creamy pink section around 90m, the host reverts back to the light green grey/ beige phase of the altered intermediate intrusive. The host has been microfractured on a granular scale allowing the alteration to pervasively penetrate the groundmass. Silicification is also strong throughout to the point of generating patches of quartz sweats and veins. The porphyritic texture that was evident higher in the hole is absent/ inconspicuous and is replaced by a massive, fine grained texture in this interval. The narrow pale green mafic intrusives noted above and similar looking ultramafic inclusions, some resembling weak green carbonate, continue through this unit. Generally, they range from 5- 60cm, are weakly foliated and cut the core @45- 70 TCA as follows: 87.82- 88.16m; 89.18-89.50m; 91.30- 91.40m; 92.45- 93.08m; 94.04- 94.27m; 101.73- 101.79m; 101.90- 102.10m; 102.50 102.72m; 108.35- 108.47m.

Ankerite alteration remains strong in the veining and matrix, particularly in the inclusions. The MS values average about 0.07 within a narrow range of 0.02- 0.10 in the felsite, but jump to about 0.20 in the mafic inclusions. The sulphide content decreases down hole from about 0.5% in the upper sections to about 92.00m, and trace beyond. Narrow corridors/ halos around quartz patches/ veins and some structures may range up to 1% over a few decimeters; the dikes contain nil to trace.

96.14 96.60 Fault Zone - Only the tight slips @ 30 TCA at the ends of the interval actually form part of the fault. The rest is chlorite crushed with patchy veining at the leading contact and 1% sulphides.

26454	87.40	88.15	.75	1	.000	.000	nil
26455	88.15	89.19	1.04	2	tr	.000	3
26456	89.19	90.19	1.00	0.5	tr	.000	9
26457	90.19	91.28	1.09	0.5	tr	.000	2
26458	91.28	92.26	.98	0.5	.001	.000	32
26459	94.85	95.90	1.05	0.5	.000	.000	nil
26460	95.90	96.60	.70	1	tr	.000	2
26461	96.60	97.50	.90	TR	tr	.000	10
26462	97.50	98.28	.78	TR	.000	.000	nil
26463	104.00	104.88	.88	TR	.001	.000	24
26464	104.88	105.60	.72	1	.002	.000	67
26465	105.60	106.16	.56	TR	.002	.000	65
26466	111.19	111.85	.66	TR	tr	.000	9
26467	121.50	122.68	1.18	TR	tr	.000	14
26468	122.68	123.63	.95	0.5	.001	.000	19

	Drill Hole AK-03-03 Page: 7							
Geology	Sample	From	ТО	Len	Sul	AU	AU1	AU2
	NO.	(m.)	(m.)	(m.)	3j	OZ/T	OZ/T	dqq

- 105.00 105.55 Felsic Dyke Almost imperceptible from the host, this little dike was distinguished by its slightly higher susceptibility of 0.18; it is also better mineralized with 1% pyrite. The upper contact is irregular in a splintered section of core, the trailing contact, sharp, @ 40 TCA. The dike is light grey and has a cherty appearance; it is moderately fractured with fine spidery chlorite fillings. A second similar dike that is even more difficult to distinguish occurs at 106.91- 107.20.
- 108.47 111.00 Felsite This phase of the felsite is almost glassy in texture, but at the same time, is less altered and fractured allowing the medium to dark purple grey and slightly porphyiritic texture to show through. Sulphides are trace and the MS values 0.02- 0.07.
- 111.36 111.39 Fault Zone This is a narrow Quartz Chlorite Breccia Fault @ 20 TCA with a 5cm halo of 1% sulphides.
- 111.85 112.95 Carbonated Ultramafics The strong foliation defined by the whispy ankeritic veining/ streaking along the fabric planes and the medium green grey chloritic composition of the matrix, identifies this as ultramafic. The contacts are somewhat splintered but appear sharp and irregular @ about 25/ 85 TCA. The fabric is steep but slightly variable, averaging 70 TCA. MS values rise to 0.31 and sulphides range up to 0.5%. In a few places where guartz ankerite veinlets cross earlier carbonate streaks parallel with the fabric, weak green carbonate halos form.
- 114.53 116.00 Carbonated Ultramafics Resembling the unit above, this interval hosts a chlorite carbonate schist texture @ 50-85 TCA and a fine grained central zone. The colour ranges from streaky light to medium grey; contacts are irregular but sharp @ 80/ 30 TCA. Mineralization is weak/ trace but the veining and matrix, strongly ankeritic. As with the previous inclusion, the susceptibility increases to 0.26- 0.35.
- 122.68 123.63 Silicified Zone The last metre of the felsite contains patches of quartz and strong silicification (60%) with 0.5% sulphides. The lower contact is sharp but irregular @ about 70 TCA.

## 123.63 136.84 TUFF GREYWACKE

TO

From (m.) (m.)

> The leading 0.5m is characterized by strong crushing/ cataclasis @ 55-65 TCA followed by another 0.5m of blocky core. This in turn leads to a 60% quartz flooded zone to 125.50m, at which point, the characteristics of the host rock become a little more identifiable. It is light grey, mildly to moderately foliated @ 45-75 with an average of 65 TCA and has a flattened, fine grained granular texture containing scattered round quartz grains and a

26469	123.63	124.60	.97	0.5	.000	.000	nil
26470	124.60	125.50	.90	TR	tr	.000	14
26471	125.50	126.38	.88	TR	.002	.000	53
26472	129.22	129.84	.62	TR	.001	.000	17
26473	129.84	130.86	1.02	TR	tr	.000	5
26474	133.58	134.00	.42	0.5	tr	.000	10

			Drill Hole AK 03-03					Page: 8 of 16			
From (m.)	To (m.)	Geology	Sample No.		To (m.)				AU1 OZ/T	AU2 ppb	

very fine sericitic matrix, that, along with carbonate veining, highlight the fabric. With the granular textures, the host is either an intermediate ash tuff or greywacke/ arkose. Locally, the texture becomes gritty with fine flattened lapilli to 1cm, as at 134m.

The matrix and veining continue strongly ankeritic. Sulphides are slightly enriched in the crushed section at the start, perhaps up to 0.5%, but trace over the remainder of the zone. The MS values fall within a range of 0.12 and 0.22.

- 129.39 129.47 Silicified Zone Not really quartz or typical silicification, this zone resembles dull grey cherty quartz with irregular/ serated contacts @ 60 TCA. There are trace sulphides in the vein and only slight enrichment (<0.5%) in the wall rock.</pre>
- 130.58 130.80 Felsite This appears to be a felsic dike with sharp contacts @ 75/ 65 TCA that cut the foliation and are partly rimmed with quartz. The dike is fine grained, silicified to a mottled/ patchy dull grey and buff olive grey and mineralized with anomalous, but <0.5%, sulphides.</p>
- 133.78 133.84 Fault Zone The FAZ is a Quartz Carbonate Shear Fault @ 45 TCA. It contains 10% streaks and grains of sulphides over about 10cm.

#### 136.84 160.09 LAPILLI TUFF

The contact with the tuff seems to fall on a lcm carbonate quartz vein @50 TCA. The overall colour is light to medium grey with olive streaky tones. Fragmental textures appear to comprise primary flattened, losenge- shaped clasts/ lapilli to 4cm as well as tectonic/ cataclastic fragments. The primary fragments are so highly deformed and altered that they are defined by their colours which include various shades of light, medium and dark grey, white and yellow/ olive green. The matrix is strongly ankeritic and sericitic. Several thick lenses (to 1m) of tuff are interbedded with the lapilli tuff units.

Although concentrated near the start, evidence of tectonic fracturing occurs throughout the section as illustrated by the offset of earlier dull white quartz veins into a series of 'steps' as at 148.60m. Between, and immediately down hole from the two cataclastic faults (described separately below) near the start of the interval, are crenulated/ folded sections of the unit. The cataclasis, folding and extensive quartz carbonate veining decrease down hole and settle into a moderate foliation/ shear fabric by about 150.50m. To this point, tectonized dull grey to dark grey to dull white quartz/ quartz carbonate veining amounts to about 20%, whereas down hole, it decreases to < 3%. The carbonate component of the veining and matrix is strongly ankeritic throughout. Sulphide mineralization does not appear to increase significantly in the deformation corridor, but remains essentially trace with occasional anomalous sections to 0.5% over 0.5m as at

26475	136.97	137.52	.55	TR	.000	.000	nil
26476	137.52	138.33	.81	TR	.001	.000	21
26477	138.33	138.92	.59	TR	.000	.000	nil
26478	138.92	139.94	1.02	TR	tr	.000	12
26479	139.94	140.95	1.01	TR	tr	.000	12
26480	140.94	142.10	1.16	TR	tr	.000	10
26481	146.44	147.30	.86	TR	.001	.000	19
26482	147.30	147.93	.63	TR	tr	.000	9
26483	147.93	148.77	.84	TR	.001	.000	27
26484	148.77	149.77	1.00	TR	tr	.000	14
26485	149.77	150.50	.73	TR	.001	.000	21

			Drill Ho	ole AK (	03-03	P	9 of 16		
From To (m.) (m.)	Geology	Sample No.	From (m.)		Len (m.)		AU OZ/T	AU1 OZ/T	AU2 ppb

141.00, 147.10 and 149.50m. The susceptibility cosistently falls within a narrow range between 0.20 and 0.40, averaging about 0.30.

- 138.33 140.23 Fault Zone Partially described above, this FAZ marks a strong deformation corridor in the hanging wall of the Larder Lake Break, presuming of course, that the Break is still pending. It is characterized by Cataclastic Faults @ 70-80 TCA over the leading 0.60m and trailing 0.30m of the interval with crenulated/ folded sections between the two faults and for 0.5m down hole. The structures are defined by strong crushing and movement of early guartz carbonate veining and host rock fragments that have been healed with a green black chlorite carbonate matrix. Sulphides are slightly anomalous, occuriing as grains and streaks in the fractures, but well less than 0.5%.
- 147.93 148.77 Quartz Vein Zone This section contains approximately 75% well crushed guartz carbonate veining that ranges from dull beige to light grey to dark grey. The host is well sericitized but sparsely mineralized. The strong fabric cuts the core at steep angles but is also contorted locally.

## 160.09 246.13 TUFF LAPILLI TUFF

The contact was taken at the point where the continuous sections of lapilli texture ended and the host became more tuffaceous (finer) in overall character. It is similar to the unit described at 123.63m, fine grained. massive but mildly to moderately foliated throughout @ about 55 TCA and light grey coloured. The matrix comprises fine grains that have been flattened/ stretched in the plane of foliation except for scattered quartz grains that remain round. Again, this may indicate a sedimentary (greywacke) origin rather then volcanic. Approximately 25% of the interval is slightly coarser grained/ gritty, and resembles the lapilli tuff above. The clasts are non granitic (non pink) and are stretched into flat lozenge shapes, probably in a 6:1 ratio, usually grit size (<1cm), but generally never larger then 3- 4 cm in length. Contacts between fine and coarse (tuff and lapilli tuff) phases are gradational into one another and are not broken out.

Overall, the intensity of deformation decreases down hole, however, a mild foliation fabric persists throughout the interval. Staining with ferricyanide solution indicates that the matrix remains strongly ankeritic. as are the few scattered white ankerite veinlets that make up <0.5% of the core below 174m. The MS values modulate between 0.16 and 0.27, averaging about 0.22. Since there are no significant structures in the tuff unit, the sulphide content averages trace overall, but in places, becomes weakly anomalous, but <0.5%; generally, a few scattered grains are visible in most pieces of core. Any sampling done in this unit, relates to slightly anomalous pyritic sections, and not necessarily to increased veining or stronger structures which are described separately.

26486	161.31	162.16	.85	TR	.001	.000	27
26487	169.70	170.90	1.20	TR	tr	.000	9
26488	182.30	183.26	.96	1	.001	.000	41
26489	195.85	196.85	1.00	TR	.001	.000	17
26490	196.85	197.85	1.00	TR	tr	.000	12
26491	242.79	243.76	.97	TR	.000	.000	nil
26492	243.76	244.39	.63	TR	.000	.000	nil
26493	244.39	245.30	.91	0.5	.000	.000	nil
26494	245.30	246.13	.83	2	tr	.000	10

Geology	Sample	From	To	Len	Sul	AU	AU1	AU2
	No.	(m.)	(m.)	(m.)	%	OZ/T	OZ/T	ppb
161.31 162.16 Fault Zone - Hardly as strong as previous structures, this FAZ is a moderately fractured zone that develops local weak cataclastic features @ 60 TCA. Sulphides are slightly anomalous.								

- 182.95 183.22 Quartz Vein Zone As with the FAZ above, this is a weak quartz vein zone with 50% grey crushed/ granulated quartz @ 60- 65 TCA and 1% sulphides.
- 195.85 197.85 Quartz Vein Zone Overall, the interval contains about 15% crushed grey quartz veining and patches @ 55/ 65 TCA; as above, however, sulphides are less than 0.5%.
- 243.76 246.13 Tuff (Sericitized) A few metres from the contact, the core becomes moderately sericitic as well as foliated @ about 60 TCA. Associated with the increase in alteration and deformation is a corresponding increase to 15% silicification and patchy dull grey quartz and to 1% sulphides as fracture fillings/ veinlets and disseminated grains. A few scattered grains of chalcopyrite were also noted.

### 246.13 262.26 CARBONACEOUS SEDIMENTS

Following about a metre of broken blocky core from the contact to 247.00m, which represents a leading Shear Gouge Graphite Fault @ 50- 60 TCA and 50cm lost core, there is a 40cm contorted silicified section which, together, form the contact zone. Overall, the interval is dark grey to black with 15% light to medium grey bands/ beds and streaks. The prominant darker beds contain elevated concentrations of carbonaceous material which imparts the blacker tones although dark grey streaks indicating the presence of graphite, are only obtained on slips. The banding and superimposed moderate foliation cut the core @ 50- 60 TCA. Lighter layers are strongly, pervasively ankeritic; both are very fine grained.

In addition to the light grey ankerite layers, white and dull grey quartz lenses, which amount to approximately 2% overall, also contain fractures and inclusions of ankerite. Sulphide mineralization is restricted to the odd disseminated speck or streak, particularly near the start of the interval. The susceptibility falls within a narrow range of 0.14-0.23.

- 251.07 251.13 Fault Zone As mentioned above, the leading contact of the graphitic sediments occurs on a strong fault @ 50 60 TCA. This interval consists of a weaker 5cm Gouge Zone @ 60 TCA. There is no accompanying alteration or deformation in the walls.
- 261.69 261.75 Fault Zone As with the previous FAZ, this is an isolated Gouge Fault @ 60 TCA with no wall rock alteration.

26495	246.13	247.00	.87	TR	.000	.000	nil
26496	247.00	248.00	1.00	TR	tr	.000	15
26497	248.00	249.00	1.00	TR	.000	.000	nil

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Drill Hole AK-03-03

			1	Drill Hole AK-03	- 03	Pa	ge: 11	of 16	
From (m.)	To (m.)	Geology	Sample No.	From To (m.) (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
262.26	300.44	LAPILLI TUFF CARBONACEOUS SEDIMENTS GREYWACKE	26400	044 65 046 40					-
		The contact was arbitrarily taken at a 10cm thick fine grained, light brown/	26498 26499	264.65 265.63 265.63 266.18	.98	TR 0.5	tr tr	.000	5
		olive grey, wacke lense which appears to represent the point at which the	26500	266.18 266.93	.75		.000	.000	nil
		carbonaceous content begins to show a decline. The lithologies also become	21501	272.92 274.11	1.19	TR	.000	.000	nil
		mixed alternating amongst massive wacke lenses, lapilli tuff zones and graphitic slivers.	21502	299.15 300.44	1.29	TR	tr	.000	11

olive grey bands exhibit a granular texture similar to the tuff above but are labeled greywacke in light of the setting with the graphite. They occur as lenses and bands/ beds ranging from a few centimeters to perhaps a metre in thickness. In some instances, the exact contacts are difficult to pinpoint since they seem to grade into a fragmental through a tectonic brecciation phase. Often, the wacke contains 0.5mm scale flattened and shard-like clasts and quartz grains.

The fine grained, massive to moderately foliated, lighter grey to light

As indicated above, the lapilli tuff horizon is partly a deformation feature related to crushing of thin sedimentary beds. In many places, however, there are primary clasts of varying sizes, as at 272.70m (clasts to 6cm), that have been further fragmented tectonically. In general, most of the clasts are elongate with lensoid shapes but are cut and embayed with chloritic, sericitic (weak), or graphitic fractures; many are also kinked or folded in part. Overall, they are well carbonatized (ankeritic) to light grey, but, locally, slight changes in colour tones imply multiple host lithologies.

Dark grey/ green black fractures, slivers, lenses, and slips are chloritic and graphitic in composition. Some are strictly tectonic infillings but others represent primary mafic and carbonaceous interbedded layers. These also form the focus of shearing/ more ductile deformation. The fabric at the start of the interval trends @ about 55 TCA; by 288m, the dip steepens to 60-75 TCA.

Ankerite continues to form the dominant carbonate in veining but particularly as pervasive replacement/ alteration of the wacke beds and fragments. The overall quartz content, as veins and patches, of the zone is about 1%. MS values remain consistent between 0.12 and 0.27 except for a drop to 0.05 in a dull white crushed fragmental at 279.60m. Sulphides average trace throughout the interval but rare streaks to 3mm, such as at 266.07m, were noted. Any sampling done reflects the presence of a pyritic streak or quartz veining.

- 264.65 266.00 Quartz Vein Zone This interval shows an enrichment of dull white quartz veins and patches @ 50- 65 TCA, to approximately 25%. There is no corresponding increase in sulphides or degree of alteration.
- 289.80 289.97 Fault Zone Comprised mostly of chips with a few larger pieces, this FAZ is a Mud Gouge Fault @ about 75 TCA.

292.10 292.30 Fault Zone - This fault is much stronger with a central 15cm

From To Geology Sample From To Len Sul	AU AU1 AU2
(m.) (m.) No. (m.) (m.) %	

thick gouge plug that is preceded by broken core. It trends  $\circledast$  80- 85 TCA.

297.15 298.81 Greywacke - Characterized by fine grain size, light grey to olive grey colour, and granular texture, this is the thickest of the wacke horizons. Although generally massive, there is a fabric developed @ about 65 TCA which comprises a mix of foliation, tectonic fracturing and possible bedding.

#### 300.44 312.09 BLONDE ALTERATION ZONE

One gets the impression that this is a continuation of the same lithologies but that the style of alteration has changed. In a strict sense it is not a blonde alteration zone but rather an increase in deformation and strong sericite alteration, which, towards the end of the interval, becomes a massive lime yellow unit. The leading contact was taken at a point where the finer grained light buff grey slivers/ streaks and lenses become dull to bright lime green coloured (sericitic). The 30cm preceding the contact are strongly contorted and fractured; the contact itself seems to fall on a curved Chlorite Slip @ 45 TCA and possible drag fold on the footwall side.

From the contact to 307.93m, the zone is moderately contorted/ folded, the primary folding being further deformed into echelon patterns by later crushing/ fracturing along the plane of the foliation @ about 65 TCA. As mentioned above, the lithologies from the previous package seem to continue and include: the wacke lenses tectonized by the multiple phase deformation which have become the lime coloured/ sericitized, more massive banded/ streaky portions of the interval; the fragmental, now shredded by the folding and fracturing, is also lime green altered; the dark green grey chloritic carbonaceous material continues to form the matrix of the sedimentary package and fractures. The lower part of the sericitized zone from 307.93m to the end, is massive, fine to medium grained granular (in part) textured, and probably represents a massive wacke unit in which the finer matrix material has been extensively sericitized. A window of undeformed grit at 311.17m illustrates the sedimentary character of the host. The overall base colour is light lime yellow near the start but becomes mottled greenish tan/ beige over the last 2m. Although massive looking, the folding, crushing and foliation features noted in the upper mixed zone continue into the wacke lense.

Despite the increase in degree of alteration and deformation, the relative abundance of quartz veining and patches remains low at about 2-3% as does the sulphide mineralization at trace. Locally, pyrite occurs as isolated grains and streaks to 0.5% over locm. Ankerite continues as the dominent carbonate mineral in the veins and matrix, although the matrix is less pervasively carbonatized. MS values fall within a narrow range of 0.13-0.19 in the mixed phase but rise from 0.24 to 0.32 in the wacke. The trailing contact was taken at a 2cm quartz vein @ 40 TCA at the end of the massive wacke section.

5	.000	tr	TR	1.34	301.78	300.44	21503
nil	.000	.000	TR	1.22	303.00	301.78	21504
nil	.000	.000	TR	1.00	304.00	303.00	21505
nil	.000	.000	TR	1.00	305.00	304.00	21506
nil	.000	.000	TR	1.00	306.00	305.00	21507
nil	.000	.000	TR	1.00	307.00	306.00	21508
5	.000	tr	TR	1.00	308.00	307.00	21509
9	.000	tr	TR	1.00	309.00	308.00	21510
3	.000	tr	TŔ	1.00	310.00	309.00	21511
nil	.000	.000	TR	1.00	311.00	310.00	21512
3	.000	tr	TR	1.00	312.00	311.00	21513
nil	.000	.000	TR	1.00	313.00	312.00	21514

Drill Hole AK-03-03 Page: 12 of 16

			Drill Hole AK-03-03						Page: 13 of 16			
From (m.)	To (m.)	Geology	Sample No.		To (m.)		Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb		

## 312.09 315.40 CONGLOMERATE CARBONATED ZONE

The intense deformation, folding and cataclasis, continues into this unit which is interpreted as a conglomerate, at least a fragmental of some sort. Despite the structural overprint, the variety of colours and ovoid shapes of many of the fragments indicates a conglomeratic protolith; this is particularly evident over the leading 2m. Clasts are light pink, beige, salmon, yellow, apple green (fuchsitic), and grey indicating a polymictic origin, including a felsitic (syenitic/ granitic) component. They range from round (313.40m), to lensoid, to elongate, to irregular depending on competancy or softness. At the start, the matrix is a mix of chlorite, carbonate and sericite, whereas, the trailing 1.5m is strongly chloritic. This lower chloritic zone is associated with an increase in deformation comprising strong folding and cataclastic brecciation of the conglomerate. It ends on 30cm wide Shear Zone @ about 70 TCA.

The susceptibility of the conglomerate ranges between 0.22 and 0.32; sulphides are slightly anomalous in places (315.29m, 10% over 4cm) but trace overall. Matrix and vein carbonate is strongly ankeritic.

## 315.40 332.30 TRACHYTE

If this is true trachyte, then the hole has crossed into the Timiskaming Group, possibly with the conglomerate. The trachytic protolith was interpreted from: the fine grained texture; the general massive and homogenous nature although parts are spotted and foliated; the increase in fine dusty black magnetite grains; the lack of any sedimentary or primary fragmental textures; the overall pinkish/ maroon colour (very similar to that of incipient alteration) indicating possible hematization of some of the magnetite. The transition back and forth between foliated and massive sections may reflect pulses of tuff and flows. The main foliated/ tuffaceous section, which occurs from 323.53 to 325.24m, is streaky light pink and grey with the fabric trending @ about 70 TCA. Massive sections/ flows grade from medium/ dark grey green groundmass with pink alteration spots to finer textured, weakly foliated/ streaky/ mottled medium maroon/ pink qrey zones.

The host has been pervasively carbonatized by strong ankeritic alteration. Dull grey and pink spots in the trachytes as well as streaks and veinlets are also ankeritic. The relationship between the magnetic susceptibility and the pyrite content is interesting. The areas with MS values above about 8.00 contain abundant fine dusty black magnetite whereas those below 2.00 contain almost no visible magnetite but proportionately higher fine and streaky pyrite; coincidently, the pinkish colouration disappears. In the intermediate MS range (2.00-8.00), magnetite and pyrite coexist. Therefore, it seems likely that the magnetite and hematite are converted/ sulphidized to pyrite. In these areas, it is impossible to estimate sulphide percentages without a lens since the pyrite is generally very fine. Low MS values occur at: 315.55- 316.06m with 5% py; 324.27- 324.74m with 5% py and cp; and, 327.18- 330.85m with a halo of 0.5- 3% and a 75cm core of 10% py. The

21515	313.00	314.00	1.00	TR	.000	.000	nil
21516	314.00	315.00	1.00	TR	.000	.000	nil
21517	315.00	315.55	. 5 5	TR	tr	.000	14

21518	315.55	316.06	.51	5	.001	.000	19
21519	316.06	317.00	.94	TR	.000	.000	nil
21520	317.00	318.22	1.22	TR	.000	.000	nil
21521	318.22	319.30	1.08	TR	tr	.000	5
21522	319.30	320.50	1.20	TR	.000	.000	nil
21523	320.50	321.80	1.30	TR	.000	.000	nil
21524	321.80	323.00	1.20	TR	.000	.000	nil
21525	323.00	324.27	1.27	TR	.000	.000	nil
21526	324.27	324.74	.47	5	.000	.000	nil
21527	324.74	325.24	.50	0.5	tr	.000	14
21528	325.24	326.30	1.06	TR	.000	.000	nil
21529	326.30	327.18	.88	0.5	.000	.000	nil
21530	327.18	327.87	.69	3	.000	.000	nil
21531	327.87	328.90	1.03	0.5	tr	.000	5
21532	328.90	329.63	.73	10	tr	.000	7
21533	329.63	330.25	.62	1	.000	.000	nil
21534	330.25	330.85	.60	2	.000	.000	nil
21535	330.85	332.00	1.15	TR	.000	.000	nil
21536	332.00	332.95	.95	2	.000	.000	nil

				DIIII AQ	DIE AK-U	5-05	P	age. 14	01 10	
From (m.)	To (m.)	Geology	Sample No.	From (m.)	<b>T</b> O (m.)	Len (m.)		AU OZ/T	AU1 OZ/T	AU2 ppb

remaining intervals contain tr to 0.5% pyrite.

### 332.30 343.23 TUFF TRACHYTE

This interval is characterized by a change from massive to pervasively foliated and/ or folded textures. The overall fabric trends about 60 TCA at the start, flattening to 40 TCA in the middle and ending @ 75 TCA; the leading contact was taken on a chlorite carbonate slip @ 60 TCA. Foliation and folding features are defined by pink and beige whispy carbonate streaks, patches and dislocated broken bands that mimic the structures. The tuffs are fine to very fine grained and often exhibit granualr textures. This is best illustrated in an interval from 341.25 to 341.63m which is clearly granular with a variety of sand size grains and a clear bedding contact @ about 80 TCA. Alteration is sericitic but deformation is minimal allowing the identification; in fact, the host appears to be more sedimentary, ie a greywacke.

As with the previous unit, the lower MS values seem to reflect a decrease in magnetite and corresponding increase in pyrite content. Outside of an interval from 332.00 to 335.88m which contains up to 4% pyrite and susceptibility values below 1.25, the host contains only trace sulphides with MS values reaching 23.0. The carbonate in the matrix and veining remains strongly ankeritic; late patchy dull/ pale orange and white carbonate veining accounts for approximately 5% of the zone.

# 343.23 352.14 TRACHYTE

This unit resembles the massive spotted sections of the interval at 315.40m. The base colour is medium grey at the start becoming gradually darker green grey by the end; the entire unit is highlighted by light pink 1-2mm speckles which, in places, seem to merge, becoming elongated, lapilli like blebs or streaks. Because of the massive nature of the host and to be consistent with the terminolgy used above, it was called a trachyte flow. The spots and elongate blebs are ankeritic in composition and appear to represent alteration effects rather then primary features. Interbedded with the flows are pale pinkish grey, fine grained, moderately foliated zones (345.67-346.00m & 347.15- 347.45m) that may be tuffaceous horizons. The internal fabric and contacts trend 0 60- 65 TCA and the 10cm immediately above the lower tuff lense is crenulated and contacts the tuff unconformably.

The leading contact of the host is sharp, on a Chlorite Carbonate Slip/ veinlet @ 65 TCA. The lower contact is also sharp and irregualr but appears natural @ 80 TCA. MS values are elevated and oscillate between 7.00 and 30.0. Using the criteria from the previous units, with the higher MS values, the sulphide content is trace. As mentioned above, ankerite forms the only carbonate mineral.

#### 352.14 361.30 TUFF GREYWACKE END OF DEFORMATION ZONE

21537	332.95	333.60	.65	4	tr	.000	15
21538	333.60	334.90	1.30	0.5	.000	.000	nil
21539	334.90	335.88	.98	TR	tr	.000	10
21540	335.88	336.94	1.06	TR	.000	.000	nil
21541	336.94	338.00	1.06	TR	tr	.000	5
21542	338.00	339.23	1.23	TR	tr	.000	10
21543	339.23	340.28	1.05	0.5	tr	.000	12
21544	340.28	341.65	1.37	TR	.000	.000	nil
21545	341.65	343.00	1.35	TR	.000	.000	nil
21546	343.00	344.20	1.20	TR	.000	.000	nil

Dage 14 of 16

Drill Hole AK OF OF

From	To
(m.)	(m.)

Geology

Drill Hole AK-03-03 Page: 15 of 16

Sample	From	То	Len	Sul	AU	AU1	AU2
NO.	(m.)	(m.)	(m.)	olo	OZ/T	OZ/T	ppb

Through the natural leading contact, the host becomes a massive, fine grained, granular moderately altered trachyte tuff/ tuffwacke. The zone begins with a dirty mottled, medium to light grey and greyish pink mix, becoming dark grey at 354.25m immediately following a 10cm thick massive trachyte lense (@ 65 TCA), and lightens up over the lower 5m. This trailing section, from 357.26-361.31m, exhibits sharp natural contacts @ 60/85 TCA and weak internal bedding defined by faint trains of black magnetite grains @ 65 TCA. It is light grey pink, granular, massive but somewhat porous textured, fine grained with an embayed internal contact at 360.95m indicating tops down hole. The zone began with a weak foliation fabric @ about 70 TCA, but this disappeared by 355.50 and, therefore, can be considered as the end of deformation.

The interval remains poorly mineralized with nil to trace sulphides. The MS values fluctuate between 12.0 and 24.0 with an average of about 20.0. Carbonate veining amounts to about 0.5% of the unit, concentrated mainly over the upper 0.5m. The matrix is pervasively carbonated with localized sections containing faint gash/ tear structures that are carbonate filled. The carbonate in both the vein and matrix is ankerite, however, immediately below the the lower contact, the alteration and veining become calcitic.

## 361.30 409.78 GREYWACKE TUFF

From this point on, the rock is fresh to weakly altered with a slight brown tinge to 371.80m in an otherwise medium to dark green grey coloured host. The lack of jasper grains would categorize the protolth as a tuff rather then a sediment but the 'look' is that of a greywacke. It is moderately well bedded @ 60 TCA as defined by interlayered fine and very fine grained banding and minor gritty lenses. Local ovoid beaded zones may represent original gritty/ pebbly layers that have been enhanced by pink calcitic alteration, as at 366.10m, however, another section at 367.65m contains distinct rounded pebbles of varying compositions. These basic features continue to the end of the hole.

As mentioned above, the mild alteration ends at 371.80m and the rock stays relatively fresh for the remainder of the hole. It does contain about 2% randomly oriented, late white and pink calcite veinlets and scattered narrow patches of more pervasive calcification. Sulphides are nil to trace throughout. The susceptibility undulates within a range of 12.0 to 44.0, the higher values reflecting increases in the detrital magnetite content as trains and bands along bedding planes.

398.32 408.70 Mudstone - This section is very fine grained, approaching aphanitic, and massive with only rare indications of bedding. At the leading contact, thin scalloped mudstone lenses are interbedded over 8cm, @ steep angles TCA, with the slightly coarser grained tuff from above. The trailing contact is sharp on a chlorite slip @ 65 TCA.

				Drill Ho	le AK 0	3 0 3	P	age: 16	of 16	
From	То	Geology	Sample	From	То	Len	Sul	AU	AU1	AU2
(m.)	(m.)		No.	(m.)	(m.)	(m.)	010	OZ/T	OZ/T	ppb

## 409.78 422.00 TRACHYTE

Rather than a single flow, this is a flow sequence which inlcudes a number of mixed facies including: massive flows with minor flow banding (421.80m); rubbly flow tonques/ slivers (411.57 & 421.10m); flow top (414.10m) and interflow breccias, some resembling pillow breccias (419.88- 420.55m); and tuffaceous beds (410.83 411.78m & 419.4 419.86m). The flows are very fine grained, medium to dark greenish grey, and mafic in appearance, strongly resembling typical pillowed basalt sequences. Because they are situated within the Timiskaming Group, they were classed as mafic trachytes.

Overall, they are moderately calcitic as are 0.5% whispy light pink carbonate patches and veinlets. The susceptibility readings seem to reflect the changes in facies. They indicate that the two major tuffaceous lenses fall within the range (23.0- 27.0) of the tuffs higher up in the hole, whereas the upper flows average approximately 13 within a range of 4.00-22.0. Below 419.86m, the flows appear to be more magnetic with the MS values climbing to a higher range of 26.0 to 30.0. The sulphide content of the trachytic flow unit is trace.

422.00 End of hole - The hole ends in the mafic trachyte flows. QUEENSTON MINING INC

Drill Hole:	AK-03-04								
		DIA	MOND DRIL	L HOLE RECORD			F	age: 1 of 30	
Property:	AMALGAMATED KIRKLAND								
Northing:	10230.00								
Easting:	7400.00								
Elevation:	329.00	*** Dip Te	sts ***	*** Dip Tes	ts ***		Date Started:	March 18, 2003	
		Depth Azi.	Dip	Depth Azi.	Dip		Date Completed:	April 3, 2003	
Collar Azimuth	(Grid) .00								
Collar Dip:	60.00	2.0	-56.0	452.0	-43.0		Drilled by:	н & S	
(O Degrees Gri	d equals 341 degrees True)	92.0	-54.0	542.0	-43.0		Core Size:	NQ	
Hole Length:	750.70	180.0	-46.0	626.0	-41.5		Material left in hol	e 2m NX CASING left	
		270.0	-46.0	720.0	-41.0		Core Location:	Upper Canada Site l	
Date Printed:	19 Apr, 2004	362.0	~44.0				Logged by:	F. Ploeger & D. Alexander	5
From To (m.) (m.)		Geology			Sample No.	From (m.)	To Len Sul (m.) (m.) %	AU AU1 AU2 OZ/T OZ/T ppb	

SUMMARY LOG

- .00 1.00 OVERBURDEN
- 1.00 33.03 GREYWACKE CONGLOMERATE
- 33.03 46.90 CONGLOMERATE
- 46.90 91.60 GREYWACKE MUDSTONE
- 91.60 92.46 FAULT ZONE
- 92.46 100.34 MUDSTONE GREYWACKE
- 100.34 121.00 TUFF TRACHYTE
- 121.00 140.08 GREYWACKE
- 140.08 140.68 FAULT ZONE
- 140.68 168.15 CONGLOMERATE
- 168.15 175.51 GREYWACKE
- 175.51 184.31 GREYWACKE
- 184.31 228.77 DIABASE
- 228.77 262.97 TRACHYTE MAFIC SYENITE
- 262.97 270.16 TUFF TRACHYTE
- 270.16 270.33 TRACHYTE
- 270.33 273.24 PORPHYRITIC SYENITE



42A01NE2063 2.28405 TECK

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From	То	Geology	Sample	From	ТО	Len	Sul	AU	AU1	AU2
(m.)	(m.)		No.	(m.)	(m.)	(m.)	96	OZ/T	02/T	ppb

- 273.24 277.26 TRACHYTE
- 277.26 279.73 SYENITE
- 279.73 281.82 TRACHYTE
- 281.82 296.58 TRACHYTE TUFF
- 296.58 302.72 TRACHYTE SYENITE
- 302.72 307.90 TRACHYTE TUFF
- 307.90 312.50 TRACHYTE PORCELAINOUS QUARTZ CARBONATE VEINING
- 312.50 328.47 TRACHYTE TUFF
- 328.47 376.54 SYENITE
- 376.54 382.38 CONGLOMERATE
- 382.38 389.12 PORPHYRITIC SYENITE
- 389.12 397.87 CONGLOMERATE
- 397.87 400.07 MAFIC SYENITE PORPHYRITIC SYENITE
- 400.70 402.98 CONGLOMERATE
- 402.98 406.67 MAFIC SYENITE PORPHYRITIC SYENITE
- 406.67 408.86 CONGLOMERATE
- 408.86 428.72 MAFIC SYENITE PORPHYRITIC SYENITE
- 428.72 436.83 SYENITE
- 436.83 446.61 MAFIC SYENITE PORPHYRITIC SYENITE
- 446.61 472.33 CONGLOMERATE
- 472.33 536.00 GREYWACKE
- 536.00 545.66 CONGLOMERATE
- 545.66 632.00 GREYWACKE
- 632.00 644.43 CONGLOMERATE
- 644.43 664.15 GREYWACKE
- 664.15 667.93 FAULT ZONE

				Drill Ho	le AK-C	3-04	Ρ	age: 3	of 30	
From (m.)	To (m.)	Geology	Sample No.		TO (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb

- 667.93 677.60 GREYWACKE
- 677.60 679.38 TRACHYTE
- 679.38 713.10 GREYWACKE
- 713.10 722.85 CONGLOMERATE
- 722.85 750.70 GREYWACKE

From	То
(m.)	(m.)

	Drill Ho	oie AK∘U	3.04	r	QI 30		
Sample	From	То	Len	Sul	AU	AU1	AU2
No.	(m.)	(m.)	(m.)	8	OZ/T	OZ/T	ppb

#### .00 1.00 OVERBURDEN

The overburden is shallow, consisting of organic soil and sand.

#### 1.00 33.03 GREYWACKE CONGLOMERATE

The bulk of the interval consists of massive greywacke which, in part contains thick lenses of conglomerate, grit and mudstone, the most significant of which are broken out separately. In general, it ranges from mildly to moderately altered/ bleached with corresponding colour changes from medium blue/ green grey to pale buff olive green; stronger altered sections are also described below. It is massive, rarely bedded, generally at low angles (30) TCA and fine grained, equigranular. The entire unit, irrequardless of the host lithology, is pervasively carbonatized and cut by 2% carbonate quartz veins, veinlets, streaks and patches, all of which are ankeritic. Sulphides are widely scattered through the matrix as fine disseminated grains, but <<0.5% overall, with local concentrations of fine pyrite and chalcopyrite to 0.5% over a few centimetres in the vein zones. MS values reflect the nature of host with higher values near the start indicating a tuffaceous origin for the conglomerate and the lower values in the 0.08- 0.19 range representing more normal greywacke values. There are several oxidized/ rusty slips over the leading 13m.

- 3.15 6.40 Conglomerate This section contains abundant scattered pebbles but does not have the same appearance or characteristics of typical Timiskaming conglomerates. It exhibits a high magnetic susceptibility in the 8- 17 range as does the wacke above. The pebbles are matrix supported and not densely packed, more like an unsorted debris flow. Although they represent a number of different lithologies (no jasper), most are of fine grained salmon pink variety, many are subangular indicating an immature origin. Parts of this interval, particularly adjacent to a series of parallel white carbonate quartz stringers @ about 45 TCA near the middle and end of the interval, are well altered to a light grey pink colour.
- 12.20 13.29 Conglomerate This conglomerate is more typical, being polymict (with jaspers), densely packed, crudely imbricated/ bedded with elongate clasts trending @ about 55 TCA. Contacts are natural but fairly sharp.
- 13.29 16.00 Greywacke Typical massive wacke, there is a strongly bleached, light buff green halo of alteration for a metre up and down hole from a ragged Carbonate Alteration Fault @ 25 TCA at 14.30m. The immediate walls of the fault contain scattered grains of pyrite and chalcopyrite (<0.5%).</p>
- 16.00 17.95 Mudstone This is a thin zone of light olive grey green, massive, very fine grained mudstone. The leading contact is flamed and interlensed with greywacke @ about 40 TCA. Medium

21662	3.82	4.20	.38	TR	.001	.000	21
21663	5.57	6.39	.82	TR	.000	.000	nil
21664	6.39	7.70	1.31	TR	tr	.000	14
21665	7.70	8.50	.80	TR	tr	.000	3
21666	14.00	14.58	.58	TR	.000	.000	nil
21667	29.32	30.87	1.55	TR	.000	.000	nil

From (m.)	To (m.)	Geology	Sample No.	From (m.)	TO (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
		grey fine polygonal fractures and streaks/ beds also cut the host @ 40 TCA. MS values average 0.16 and ankerite remains the dominant carbonate in the matrix and veinlets. Mineralization is trace and, the lower contact falls on a chlorite slip and 1 cm dull white carbonate vein @ 48 TCA.								
		25.54 26.88 Mudstone Preceded by a unit of massive mildly altered wacke is another lense of very fine mudstone as described above. The leading contact is serated and interdigitated with wacke while the trailing contact falls on a fault.								
		26.88 26.92 Fault Zone - This is a Gouge Fault @ 40 TCA with little to no deformation or alteration of the walls.								
		26.92 29.32 Conglomerate - This is another odd conglomerate that somewhat resembles the upper debris flow with clasts mainly comprising fine grained, pale buff green, subangular, felsitic? host. Very few pinkish coloured pebbles, and no jaspers were observed. MS values are normal, in the 0.21- 0.30 range.								
		29.32 30.87 Carbonated Zone - This is more of an alteration zone with chlorite fractured carbonatized contact zones @ about 65/40 TCA. A sprinkling of fine dusty sulphides, trace overall, occurs in the structures. Alteration comprises moderate bleaching of the host greywacke to a light yellow green colour over the interval and extending to the contact with the conglomerate at 33.03m.								
		31.65 32.00 Lost core - According to the footage blocks, there are about 35cm of core lost here.								
33.03	46.90	CONGLOMERATE The nature of this conglomerate is different again from those higher up in the hole. It is polymictic with a variety of reddish and other clasts but no jaspers; pebbles are matrix supported, rounded, generally small (<7cm), and mixed with thick greywacke lenses. What is also odd, is that the clasts are very faintly defined, almost ghostlike in appearance. Overall, the unit is mildly altered to medium grey green. A 50cm thick mudstone lense is interbedded with the wacke and conglomerate about 1m from the bottom. MS values are uniformly high, averaging 8 over the upper 5m and then dropping gradually to 0.30 near the end. The matrix and veining remain strongly ankeritic; sulphides are trace. The leading contact falls on a tight chlorite slip @ 75 TCA; the trailing one on a series of curved Chlorite Shear Crush Faults @ 30 TCA with 0.5% fine sulphides over 10cm. At 43.50m, a narrow train of hematite and minor pyrite cut the core @ 60 TCA.	21668	46.40	9 46.90	.50	TR	tr	.000	14

Drill Hole AK 03 04 Page: 5 of 30

42.83 42.99 Carbonated Zone - This is a massive white ankerite vein @ 20/ 30 TCA with a network of fine orange hairline fractures and trace sulphides.

			Drill Hole AK-03 04				4 Page: 6 of 30				
From (m.)	To (m.)	Geology	Sample No.	From (m.)	TO (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb	
46.90	91.60	GREYWACKE MUDSTONE	21660			2.5		000	000	- : 1	
		This is a total hodge- podge of interbedded wacke and mudstone/ siltstone. The overall colour is medium blue grey with local tinges of green, olive grey and slate grey. Bedding contacts are usually faint, defined by slight colour and textural variations, irregular/ corrugated and @ various angles, generally moderate to low (15- 60) TCA. Approximately 25% of the interval, mainly in the centre of the wacke, comprises a series of strange gritty- looking beds that seem to be interdigitated with swirly mudstone beds. The actual grit clasts appear to be crystalline, either primary eroded crystals similar to a crystal tuff, or coarser grains that have been accentuated by ankerite alteration. The main host lithology is very fine grained greywacke, approaching siltstone, and very fine grained mudstone. From the textural indications, ie contorted and variable angled bedding, and, the mix of lithologies, this interval is interpreted as a basin, filling with finer grained sediments, into which coarser grained phases are periodically slumped. The magnetic susceptibility falls into a narrow range between 0.14 and 0.29 and sulphides are trace. Overall, the unit is cut by 1-2% fine white carbonate veinlets, which, along with the matrix and grit crystals, are ankeritic. 80.41 80.45 Fault Zone - A minor structure, this Chlorite Carbonate Crush	21669 21670 21671 21672	89.00 89.78	80.63 89.78 90.88 91.60	.33 .78 1.10 .72	TR TR TR TR	.000 .000 .000 .001	.000 .000 .000 .000	nil nil 36	
91.60	92 46	Fault cuts the core @ 30 TCA.									
51.00	22.40	This is a Strong Shear Sericite Fault @ 30- 40 TCA that approaches mylonite in places. The fabric is strong throughout, defined mainly by fine yellow green sericite foliation planes, crushed host and dull white quartz carbonate veining. Mineralization comprises a light dusting of pyrite that amounts to <0.5%.	21673	91.60	92.46	.86	TR	.001	.000	34	
92.46	100.34	MUDSTONE GREYWACKE Generally, this unit is a more altered and finer grained version of the wacke interval at 46.90m. Overall characteristics, such as intimate intermixing of facies along irregular/ serated/ shreddy contacts, variable bedding angles, and minor grit lenses are apparent, highlighted by alteration. The very fine grained mudstone sections, which are locally laminated @ 50 TCA, are light olive yellow, whereas the slightly coarser wacke beds are medium grey green in colour. About 1.5m immediately down hole from the FAZ, is light beigey pink altered. Late carbonate veining amounts to <0.5%, and, as with the entire hole, is ankeritic along with the matrix. Sulphides are trace. MS values rise slightly to a range of 0.25-0.36.	21674	92.46	93.27	.81	TR	tr	.000	3	

100.34 121.00 TUFF TRACHYTE

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From (m.)	To (m.)	Geology	Sample No.	From (m.)					AU1 OZ/T	AU2 ppb

Texturally, the host has the appearance of a fine grained to gritty wacke, however, the spotty, but elevated, MS values indicate a trachytic tuff protolith. Other features such as increased angular white carbonate veining (about 5%), the narrow range of clast lithologies in the gritty sections and the lack of red jasper grains also point to this conclusion. Overall, the tuff is fine to medium grained/ textured, massive with gradational contacts between phases, medium pinkish grey where mildly altered and light grevish pink where moderately altered in the walls of carbonate veins. Down hole it becomes fresher with the colour changing to medium brownish grey. As mentioned above, MS values are elevated to a range of 0.50 to 26.0 with lower susceptibility in the more altered sections near the start of the interval (0.52-13.0) and higher values (averaging 22.0) lower down. Following a spike to 41.7 at 118.80m, there is a gradual decline to 0.87 at the end. Mineralization remains trace, consisting of the odd fine speck of pyrite near veins and alteration. The trailing contact of the tuff grades into the following wacke.

# 121.00 140.08 GREYWACKE

As mentioned above, the contact grades from tuff into greywacke with no perceptible change in texture or colour; it is defined by the decrease in the magnetic susceptibility to a lower stable level of about 0.20. Overall, the wacke is fine grained, massive with very faint bedding indications @ 30 TCA. medium grey with local tan/ brown and green hues, and mildly altered. Local slight increases in MS values, such as 122.50- 124.50m, where they rise to 3.00, indicate a higher tuffaceous component in the wacke. Ankerite is the dominant carbonate mineral in the 6% quartz carbonate veins and streaks that cut the wacke and also pervasively invades the matrix. Most of the veining occurs with a chlorite slip that follows the core axis. Mineralization is trace overall but slightly anomalous in the vein zones although still well below 0.5%.

- 127.07 131.00 Broken Blocky Core While not completely blocky, the core is partly broken along a series of weak chlorite slips that follow the core axis. Accompanying these slips are crushed quartz carbonate veins to 3cm that contain anomalous scattered grains of pyrite and chalcopyrite. These veins, which occur mainly between 127.07- 128.32m and 129.45- 130.53m skew the overall percentage of veining.
- 132.92 133.26 Ouartz Vein Zone The zone contains approximately 25% dull grey quartz carbonate veins and streaks, possibly related to a ragged slip @ 40 TCA near the end of the interval. Only rare fine specks of chalcopyrite were noted.
- 134.50 136.00 Agglomerate This is a fragmental unit in which the clasts are very faint, resembling patches and spots of alteration to 4cm. The MS values rise to 3.76 and then decline gradually below the interval, indicating a possible trachytic affinity

21675	126.26	127.07	.81	TR	tr	.000	15
21676	127.07	128.32	1.25	TR	.000	.000	nil
21677	128.32	129.45	1.13	TR	.001	.000	22
21678	129.45	130.53	1.08	TR	.001	.000	27
21679	130.53	131.14	.61	TR	tr	.000	9
21680	132.82	133.26	.44	TR	tr	.000	7
21681	139.31	140.07	.76	TR	.000	.000	nil
21682	140.07	140.68	.61	TR	.000	.000	nil

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From (m.)	Geology	Sample No.					AU2 ppb

which decreases in content down hole.

#### 140.08 140.68 FAULT ZONE

This is a relatively weak FAZ that marks the contact with the conglomerate. The fault is characterized by moderate foliation and crushing around a central Mud Chlorite Crush Fault @ 50 TCA. No anomalous sulphides were noted.

## 140.68 168.15 CONGLOMERATE

Through the fault there is an abrupt change to typical Timiskaming conglomerate. The leading section to 146.10m, is influenced by crushing/ fracturing and foliation from the preceding FAZ. Accompanying the deformation is an increase in the quartz carbonate veining, streaks and thready patches to 10%, but without significant mineralization. The conglomerate is unsorted, polymictic with well rounded pebbles, and clast supported with wacke matrix and lenses. Apart from the colour variation of the pebbles, it is medium to dark greenish/ bluish grey and relatively fresh, overall. As mentioned above, the quartz carbonate veining is high at the start of the zone, but decreases to about 2% for the remainder. At 146.80m, there is a change from ankerite as the dominant carbonate mineral, to calcite in the veining and matrix. Mineralization is trace throughout.

#### 168.15 175.51 GREYWACKE

The leading contact was taken at the end of the massive conglomerate unit from which point the pebble content gradually decreases down hole. The wacke is fine to medium grained/ gritty and contains distinctive red jasper grains/ chips. Although there is no obvious structure within the interval, 8% shreddy sericite streaking highlights an underlying contorted texture which is probably related to primary slumping. Otherwise, the wacke is massive and weakly altered to medium blue grey. Mineralization is trace overall with localized sections that contain scattered fine pyrite but still <0.5%. Veining amounts to <0.5% but the matrix is moderately calcitic.

#### 175.51 184.31 GREYWACKE

Through a sharp natural contact @ 55 TCA, the greywacke becomes massive without the sericite streaking or contorted texture noted in the interval above. It is homogenous, massive (totally unbedded), granular textured, relatively fresh and medium blue to brown grey coloured. A few rare pebbles were noted. The host is cut by <0.5% calcite veinlets and is pervasively calcitic. MS values drop gradually to a level trough of about 0.20 and mineralization is trace.

184.31 228.77 DIABASE

21683	140.68	141.85	1.17	TR	.001	.000	17
21684	141.85	143.00	1.15	TR	tr	.000	2
21685	143.00	144.10	1.10	TR	.000	.000	nil
21686	144.10	144.54	.44	TR	tr	.000	14
21687	144.54	145.42	.88	TR	.001	.000	17
21688	145.42	146.10	.68	TR	.000	.000	nil

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21689 170	.00	171.17	1.17	TR	tr	.000	10
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From To (m.) (m	Geology	Sample No.	From (m.)	То (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
	The diabase intrudes the wacke with a sharp contact @ 65 TCA, the leading 30cm of which are slightly pinkish tinged; for about a metre below the contact, the diabase is chilled/ fine grained. It then becomes fine to medium grained, massive felted textured, and dark greyish green coloured. The magnetic susceptibility climbs gradually from 0.36 at the contact to 25.2 at 189.0 m. Magnetic susceptibilities, however, are quite erratic across the dyke, ranging from 0.34 to 30.3. Surprisingly, the central section from 191.5 to 205.2m is weakly magnetic with no readings greater than 1.00 versus 0.36 to 25.2 above this section, and, 0.54 to 30.3 below the central zone to the lower contact. The central section exhibits more of a granular texture rather than the typical diabasic features. The mineralogy of the medium grained host consists of feldspar, chlorite, hornblende and amphibole. Cutting the diabase are wispy to streaky limey to yellow green sericite/ epidote veinlets and fracture fillings which can locally grade into a network of fractures and pervasive alteration with epidote. The dyke is also variably fractured with chlorite (+/- amphibole), calcite, hematite and serpentine.	21690 21691		0 228.00 0 228.77	1.00	TR TR	tr .001	.000	12 44
	degrees and 45 to 60 degrees "be 45 to 60 degree tractures tend to be								

degrees, and, 45 to 60 degrees. The 45 to 60 degree fractures tend to be wider and later than the 20 to 30 degrees stringers. Pervasive calcite alteration accompanies some areas with increased calcite fracturing, plus both contact zones are more strongly and pervasively calcitic from 184.31 to 185.62, and, 213.75 to 228.77. The lower, pervasively calcitic zone is also the more strongly fractured with serpentine part of the system. The rocks vary from dark grey green to dark green in colour with variable reddish to orange and limey casts. Fracturing to veining with calcite is less than 5%. Pyrite mineralization is weak to absent.

The lower contact of the diabase is faulted with 10 cms of gouge at the lower contact from 228.67 to 228.77 at 59/56 degrees. The first trace of mud is noted in the system at 227.18 amongst blocky to broken core to 227.30 - trace of mud at 40 degrees, with one mud slip at 227.64 at 42 degrees, and, blocky to broken core with traces of mud from 228.10 to the main gouge at 228.67 - orientations of mud in the section of broken core are unclear. There is also accessory fracturing with 10% calcite at the lower contact after 226.65 feet. The faulted lower contact is coded as:.

228.67 228.77 Fault gouge - gouge at 59/56 degrees.

#### 228.77 262.97 TRACHYTE MAFIC SYENITE

Contact into a complex array of what appear to be trachytic flows. The flows range from very fine grained to quite coarsely porphyritic with tabular feldspar and altered feldspars to 8 mms in size - ergo the inclusion of mafic sympite. The package varies from dull reddish grey and green to brick red and orange red in colour with variable bleaching to beige and yellowish tones related to ankerite and sericite alteration. Chlorite is also pervasive in the system such that the matrix component is often very dark green in colour. In general, the rocks are moderate to strongly magnetic but

21692	228.77	229.73	.96	TR	.001	.000	22
21693	229.73	231.00	1.27	NIL	.000	.000	nil
21694	231.00	232.00	1.00	NIL	.000	.000	nil
21695	232.00	233.00	1.00	NIL	tr	.000	7
21696	233.00	234.00	1.00	NIL	.000	.000	nil
21697	234.00	235.00	1.00	NIL	tr	.000	14
21698	235.00	235.73	.73	NIL	tr	.000	5
21699	235.73	236.50	.77	NIL	tr	.000	2

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From To (m.) (m.) Geology

local areas can be bleached to fractured and weakly to nonmagnetic such that susceptibilities across the system are erratic from 0.21 to 29.3. The rocks are moderately hard to hard. The finer grained rocks are commonly spotted to fractured and blotchy with chlorite and chlorite after probable hornblende, along with some diffuse spots of feldspar to possible pseudoleucite. In the coarser intervals, tabular feldspars are common. They may be twinned to sericitic +/- traces of probable leucite. More hexagonal spots in the system are suggested to be nepheline. Also in the coarser grained sections there are blocky crystals of hornblende and rarer black pyroxene phenocrysts.

The whole of the system is ankeritic aside from 4 cms at the upper contact zone that is calcitic adjacent to the fault - 4 cms at 67 degrees. The trachyte is weakly fractured with chlorite and hematite. The system is weakly veined with an older generation of ankerite and ankerite-quartz stringers at variable angles to the core axis, plus a later weak refracturing with fine calcite stringers at normally shallow angles to the core axis. Pyrite mineralization tends to be very weak. The sequence is subdivided as:.

- 228.77 229.73 Contact Zone as noted above, the contact zone is calcitic over 4 cms at 67 degrees. Beneath the calcitic section, the trachyte is dull grey to purple grey and beige in colour and is highly brecciated down to a narrow seam at 229.12 at 60 degrees. The lower part of the contact zone is dull orange red in colour and highly fractured to brecciated with ankerite, chlorite and sericite +/- hematite. The lower contact is along a fractured, veined and altered section over 8 cms at 32/59 degrees that appears to reflect a flow margin ??. Magnetic susceptibilities are low in this section from 0.21 to 0.43. Trace only pyrite.
- 229.73 235.73 Trachyte dull reddish grey to dull orange red and, for the most part, very fine grained trachyte. Spots to blotches of chlorite and chlorite after hornblende are common in the system along with rarer earthy spots to subrectangular patches of probable pseudoleucite, and, occasional spots of nepheline. There is local, weak brecciation in the system suggestive of flow margins - the lower contact is along a foliated to brecciated flow margin over 9 cms at 70 degrees (a trace of mud ?? in broken core at the contact). The rocks are essentially unmineralized. Susceptibilities range from 0.39 to 20.6 - most over 5.
- 235.73 239.09 Trachyte this is the first of the intervals with coarser tabular feldspathic +/- leucite blebs to pseudoleucite spots. These are best developed in the central part of this corridor from 236.99 to 238.99 away from the contact zones although outlines tend to be diffuse. Both contacts look most like flow margins that are finer grained and more highly fractured to weakly brecciated. Susceptibilities range from 0.67 to 22.6 most are greater than 10. The lowest readings are within 10

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Sample	From	TO	Len	Sul	AU	AU1	AU2
No.	(m.)	(m.)	(m.)	%	OZ/T	OZ/T	ppb
21700	249.49	249.49	.99	NIL	.000	.000	nil
21701		250.05	.56	NIL	.000	.000	nil
21702		251.00	.95	NIL	tr	.000	10
21702 21703 21704	251.00	252.00 253.00	1.00 1.00	NIL NIL	tr .000	.000	nil nil
21705 21706	254.00	254.00 255.00	1.00	TR NIL	.000 tr	.000	nil 13
21707	256.00	256.00	1.00	NIL	tr	.000	5
21708		257.00	1.00	NIL	.000	.000	nil
21709		257.41	.41	TR	.000	.000	nil
21710	257.41	258.10	.69	TR	.000	.000	nil
21711	258.10	259.00	.90	TR	.001		36
21712	260.00	260.00	1.00	TR	.002	.000	77
21713		261.00	1.00	TR	.003	.000	94
21714		261.94	.94	TR	.005	.000	172
21714		261.94	1.03	TR	.001	.000	27

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Sample	From	ТО	Len
No.	(m.)	(m.)	(m.)

ТО	Len	Sul	AU	AU1	
(m)	(m.)	%	07/T	0Z/T	

AU2

ppb

cms of the lower contact (0.67 to 1.02) - the next lowest reading in the system is 7.06. The rocks vary from dark greenish red to dull orange red in colour and are unmineralized. The lower contact is sharp at 70 degrees with accessory hematite.

- 239.09 249.49 Trachyte Mafic Syenite contact into a coarser grained corridor with tabular feldspathic +/ pseudoleucite and nepheline blebs and spots to 8 mms in size. Three finer sections are potential flow margin material at grained 240.04-240.26, finer grained, chloritic and weakly brecciated at 54/62 degrees; 240.62-240.77 at 55/59 degrees, and; 245.05-245.25 at 74/62 - lower contact irregular. The flow margins are fractured to weakly brecciated and are the more weakly magnetic parts of the system with susceptibilities from 1.11 to 7.72 in the two lower, margins - the upper margin zone is more indefinite due to the chlorite alteration susceptibilities of 10.1 to 27.7. In the balance of the system, the MS values range between 8.22 to 24.9. The rock is dark reddish green to dark reddish orange in colour and is unmineralized. The lower contact is sharp with veining at 34 degrees.
- 249.49 250.05 Flow top fault gouge contact into a short section that is also tentatively identified as a flow margin with the addition of traces of mud amongst broken core from 249.50 to 249.60. The rocks are fractured to weakly brecciated with about 20% quartz-ankerite veining at 20 to 55 degrees to the core axis. The section is unmineralized. Susceptibilities are lower here from 0.32 to 2.24. The section contains nepheline to pseudoleucite and feldspathic spots to more tabular blebs in a fine grained more chloritic dark grey green to almost black matrix. The lower contact is very irregular averaging 56 degrees.
- 250.05 257.41 Trachyte Mafic Syenite return to the more coarsely textured rocks although the coarse tabular to spotted textures are not as consistently well developed as in the prior unit particularly in the interval 251.73 to 254.22 where outlines are more diffuse. Local foliated to bleached and brecciated zones are more tenuously representative of flow margin material at 251.30-251.35 at 55 degrees; 251.72-251.80 at 72/81 degrees, and; 253.79-253.83 at 60/57 degrees (with accessory sericite and traces of pyrite). There is also some local bleaching associated with veining at 252.28 - 7 cms at 55 degrees, and, 252.62 - 7 cms at 62 degrees. Magnetic susceptibilities are lower in these intervals from 1.88 to 10.0 versus 12.7 to 29.3 in the balance of the system. The lower contact is irregular and partly broken at 34 degrees.

257.41 262.97 Trachyte - the lower contact unit marks a return to finer

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From (m.)	To (m.)	Geology	Sample No.	From (m.)	TO (m.)		Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb

grained trachyte with only local, ill defined, diffuse spots of pseudoleucite +/ feldspathic material. The rocks vary from dull reddish grev to pale and dull orange red to vellowish and beige toned in the presence of accessory sericite and ankerite. The upper contact area, to 258.02, is yellow green to dull grey in colour from accessory sericite. The core is also dull yellow green in colour with accessory sericite from 259.28 to 259.33 at 74/80 degrees surrounding 3 cms of broken core with a trace of grit to mud. The rocks are locally crudely brecciated in appearance with a better defined flow breccia from 261.94 to 262.10 with irregular contacts at 69/74 degees - numerous angular to subrounded trachytic fragments in a darker greyish to orangish matrix. The core is spotted with chlorite +/- hematite and is guite well fractured with hematite stringers to gashes. Veining is weak and threadlike at variable angles to the core axis. This unit is also weakly mineralized with trace amounts of disseminated pyrite. Magnetic susceptibilities are much lower from 0.22 to 11.0 most less than 1.0. The lower contact is sharp into more chloritic rocks at 42 degrees.

## 262.97 270.16 TUFF TRACHYTE

Contact into a tuffaceous segment. Like the prior zone from 100.34 to to 121.00, there is little to distinguish this unit. For the most part, the rocks are dark grey green to dark green in colour with a variable reddish wash to staining over a fine to medium grained, granular textured matrix. There are isolated angular, orangish alteration blebs and rarer chloritic blebs to 5 mms in size that may be construed as fragmants but a definite fragmental nature is not clear until the lower contact zone from 269.8 to 270.16 - upper contact sharp at 39 degrees, lower contact subtle into trachyte at 49 degrees. This lower fragmental zone has a mix of fragment types and sizes to 5 cms in size.

Within this tuffaceous package there is one bleached and sericitic section from 263.68 to 264.05 at 75/60 degrees. It is dull yellow grey green in colour and is largely promoted by a series of thin quartz- ankerite veins at 60 to 70 degrees to the core axis (about 15% here). This sericitic segment is also finely mineralized with 2-3% disseminated pyrite - elsewhere in the tuff, pyrite is essentially absent. The sericitic section is also a mag low with susceptibilities of 0.25 to 0.40 versus 4.09 to 19.8 in the balance of the tuffs. Outside of the sericitic zone, the rocks are very poorly fractured to veined with ankerite +/- quartz. As noted above, the lower contact is subtle into trachyte at 49 degrees.

## 270.16 270.33 TRACHYTE

Subtle contact into trachyte, that is more fully described after the dyke that follows just below the upper contact.

21716	262.97	263.68	.71	NIL	.001	.000	36
21717	263.68	264.05	.37	2 - 3	.135	.000	4646
21718	264.05	265.00	.95	NIL	.003	.000	99
21719	265.00	266.00	1.00	NIL	.001	.000	34
21720	266.00	267.00	1.00	NIL	.027	.000	915
21721	267.00	268.00	1.00	NIL	.001	.000	27
21722	268.00	269.00	1.00	NIL	.001	.000	33
21723	269.00	270.16	1.16	NIL	.003	.000	87

21724 270.16 271.00 .84 TR .048 .000 1646

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From (m.)	TO (m.)	Geology	Sample No.	From (m.)	T0 (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
270.33	273.24	PORPHYRITIC SYENITE Contact into a short dyke of porphyritic syenite with irregular contacts at 79/75 degrees. The dyke is dull to bright orange red in colour and contains tabular to subrounded phenocrysts of plagioclase to 6 mms in size in a very fine grained groundmass. The matrix component is mottled to fractured with chlorite and hematite, and, there are scattered fine ankerite +/ quartz fractures at 20 to 30 degrees to the core axis. Two quartz veins near the base of the system carry pink calcite - one of these at 272.95 (a 1 cm vein at 28 degrees) contains a coarse splash of chalcopyrite. Mineralization elsewhere in the system consists of scattered blebs to coarser aggregates of pyrite with a moderate fracture control. Magnetic susceptibilities range from 0.18 to 0.57.	21725 21726		272.00 273.24	1.00	TR TR	.002	.000	57 151
273.24	277.26	TRACHYTE Return to the trachytic unit noted just above the contact with the syenite dyke. This unit and the preceding tuff member appear to initiate an ongoing sequence on intercalated tuffs and trachytic flows over a broad area. The trachyte is fine grained and varies from dull grey beige to grey green in colour with orange red parts and variable orange red staining. The section is hard and ankeritic with local more beige tones in the presence of accessory ankerite and bleaching. There are weakly brecciated parts to the trachyte that may represent flow margin material but they are ill defined - highlighted by orange red staining. Magnetic susceptibilities are usually lower in these brecciated and orange stained parts with a range of readings from 0.25 to 23.0. The trachyte looks like a terrific host to mineralization but it is only weakly fractured with shallow angle ankerite and quartz-ankerite fractures and is sparsely mineralized with trace only blebs of pyrite. The lower contact is streaky altered with sericite at a syenite dyke contact at 47 degrees. Just above the lower contact, there is a trace of mud to grit amongst 5 cms of broken core at 54 (??) degrees.	21727 21728 21729 21730 21731	274.00 275.00 276.00	274.00 275.00 276.00 276.70 277.26	.76 1.00 1.00 .70 .56	TR TR NIL TR	.001 .001 .002 .002	.000 .000 .000 .000	46 34 38 67 53
277.26	279.73	SYENITE Contact into a short dyke of dull to bright orange red, very fine grained syenite. Due to the grain size, the dyke is fairly innocuous in appearance. It is finely fractured with ankerite with very few stringers to 5 mms in size, most of which are at 55 to 65 degrees. The dyke is weakly fractured with chlorite, hematite and more rarely sericite. Magnetic susceptibilities are low from 0.10 to 0.34. Pyrite mineralization is weak with trace only fine point to coarser blebs and aggregates that commonly have a fracture control. The upper contact is clean and sharp at 47 degrees, the lower contact is along a 1 cm quartz vein with pinkish calcite at 64 degrees.	21732 21733 21734		278.00 279.00 279.73	.74 1.00 .73	TR TR TR	.008 .003 .006	.000 .000 .000	274 101 218
279.73	281.82	TRACHYTE Return to the trachytic flow member noted above the syenite dyke. Just above the syenite dyke, the trachyte is streaky altered with sericite. That streaky, dull yellow alteration persists into the lower extremities of the trachyte flow in addition to pale to dull beige grey more massive trachyte and patchy to blotchy orange red staining. The largest orange red section	21735 21736	279.73 281.00	281.00 281.82	1.27 .82	TR-1 NIL	.010 .001	.000 .000	353 50

				Drill Hc	ole AK∼O	3 04	P	Page: 14	of 30	
From (m.)	To (m.)	Geology	Sample No.	From (m.)					AU1 OZ/T	AU2 ppb

extends from 280.50 to 281.0 at 62/74 degrees upper contact with a trace of grit on a slip. There is also some potential grit amongst broken core from 281.54 to 281.59 - orientation unclear. A trace of mud is noted at the upper contact at the base of the quartz-calcite vein at 64 degrees, and, there is a 2 mm mud seam at 280.91 at 59 degrees. At both of these locales there is some associated pinkish calcite in the core while the balance of the system is weakly fractured to pervasively altered with ankerite. Magnetic susceptibilities in the system are low from 0.12 to 0.39. The trachyte is variably fractured with hematite and is slightly better mineralized with up to 1 2% disseminated to fracture controlled pyrite. The lower contact is subtle and partly bleached at 58 degrees.

# 281.82 296.58 TRACHYTE TUFF

Contact into another of the innocuous zones that are tentatively identified as tuff. The rocks are very fine grained to finely granular textured and range from dark green to dark grey green with variable reddish washes. Aside from the contact zones, fragments are very poorly defined but orangish to dark green, angular to subrounded, spots to blebs are found across the system - commonly with diffuse margins. Coarser fragments of varying types, shapes and sizes to 5 cms are noted at the start of this corridor from 281.82 to 284.01 (lower contact irregular averaging 71 degrees), and; at the lower contact, from 295.68 to 296.58 - coarser fragments to 295.91 with mostly fine fragments 2 to 3 mms in size from there to the base. Between 285.64 and 285.98, the trachyte is also spotted with chlorite, hematite and pseudoleucite - section at 79/49 degrees, upper contact with veining.

Both contact zones of the tuff corridor are ankeritic while the central section is weakly to pervasively fractured to altered with calcite. The first calcite appears in the system at 282.72 m with patchy, more pervasive alteration after 283.25. Ankerite reenters the system along a silicified and brecciated corridor from 293.57 to 294.53 with irregular contacts at 52/37 degrees. This zone is very fine grained and varies from dull beige to dull orange red and dark reddish grey green in colour. It contains scattered metacrysts (??) of feldspar and is mineralized with an average of 1-2% pyrite blebs and aggregates. The corridor is moderately fractured with 10 to 15% irregular quartz-ankerite stringers as well as some fine fractures with chlorite and hematite. In addition, magnetic susceptibilities are much lower with readings from 0.29 to 0.63 versus 2.49 to 21.2 in the balance of the system. Outside of the silicified and brecciated corridor, the tuff is weakly fractured to veined and sparsely mineralized. The corridor is coded as:.

### 293.57 294.53 Silicified brecciated.

The lower contact into trachyte is subtle at 76 degrees.

#### 296.58 302.72 TRACHYTE SYENITE

Contact	into	а	trachyt	e unit	: that	is	cut	by t	two d	lykes	of	syenite from	21743	296.58 296.98	.40	TR	.030	.000	1029
296.98-2	97.92	at	44 de	grees,	and,	299.	86-30	2.05	at	33/4	5	degrees. The	21744	296.98 297.92	. 94	TR	.001	.000	39

21737	281.82	283.00	1.18	NIL	tr	.000	14
21738	283.00	284.01	1.01	NIL	.001	.000	29
21739	292.50	293.57	1.07	NIL	.002	.000	74
21740	293.57	294.53	.96	1 - 2	.045	.000	1563
21741	294.53	295.50	.97	NIL	.003	.000	93
21742	295.50	296.58	1.08	NIL	.001	.000	45

		1	Drill Ho	le AK 03	04	Pa	ge: 15	of 30	
From To (m.) (m.)	Geology	Sample No.	From (m.)	To (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
	trachyte is dull grey green to putty coloured with local more beige tones in	21745		299.00	1.08	TR	.006	.000	189
	the presence of stronger ankerite alteration, more yellowish toned in areas with accessory sericite, and, purplish toned locally from hematite. Around	21746 21747		299.86 301.00	.86 1.14	NIL TR	.002 .001	.000	65 50
	the first dyke of syenite the trachyte is brecciated, sericitic and variably	21747		302.05		TR-1	.002	.000	69
	orangish stained from 296.76 to 296.98 with only 2 cms that are partly sericitic at the lower contact. In the lower dyke, contact effects are minimal. The trachyte is also sericitic from 298.73 to 298.84 - the fine grain size and the pattern of the core suggests a possible flow top - sharp contact at 298.84 suggesting tops are down-hole. The trachyte is weakly fractured with ankerite-quartz and fine fractures with hematite +/- ankerite. Mineralization is best developed around the fringes of the syenite dykes. Magnetic susceptibilities are variable - the upper part of the trachyte to the contact with the first dyke has low readings from 0.37 to 0.97, with further low readings at the potential flow top, and, at the base of the section (a possible hematitic flow top) from 0.55 to 0.94 versus 3.44 to 15.6 in the remainder of the trachyte.	21749		302.72	.67	TR	tr	.000	14
	Magnetic susceptibilities in the two syenite dykes vary from 0.16 to 2.74. The syenite dykes are dull orange red to brick red in colour and very fine grained. The dykes are similarly weakly fractured with ankerite- quartz and variably fractured with hematite +/- ankerite. The units are weakly mineralized with blebs to aggregates of pyrite in trace amounts (to 1%). There are a few tiny spalshes of chalcopyrite in a couple of the ankerite veins. Dyke contacts are clean and sharp and coded for plotting as:.								
	296.98 297.92 Syenite.								
	299.86 302.05 Syenite.								
	The lower contact of the trachyte system is along a purple to beige toned section - a possible flow top ?? - at 33 degrees.								
302.72 307.90	TRACHYTE TUFF								
	Return to the tuffaceous style of unit with generally ill defined fine fragments in the system. While the fine fragments are at a premium, there are scattered corridors in this section where coarser fragments to 2 cms in size are encountered fragments include trachyte and syenite plus variably altered equivalents in zones from 1.5 to 25 cms in core length. These coarser corridors are invariably more orangish to reddish stained but they are relatively consistent at 30 to 45 degrees to the core axis although contacts are often irregular. One of the better defined units is at 307.05 to 307.26 at 40/44 degrees. The majority of this package is dark grey green in colour with a fine granular texture. The rocks are weakly fractured with ankerite and are very sparsely to unmineralized. Magnetic susceptibilitiues range from 8.09 to 17.1 - there is no difference in readings between the fine and coarser fragmental sections. The lower contact is subtle but sharp and partly bleached at 42 degrees.	21750 21751		303.50 307.90	.78 .90	TR NIL	tr .001	.000	15 41

				Drill Ho	le AK 03	5 - 04	Pa	age: 16	of 30	
From (m.)	TO (m.)	Geology	Sample No.	From (m.)	TO (m.)	Len (m.)	Sul %	AU 07/T	AU1 OZ/T	AU2 ppb
		Return to trachytic flows. Just inside the contact of this trachyte segment	21752	307.90	308.50	.60	5 - 7	.040	.000	1359

(from 307.97 to 309.28), the flows are highly fractured to brecciated, altered, silica flooded and mineralized with about 30% irregular, porcelainous ankerite stringers at very shallow angles to the core axis (generally 0 to 30 degrees). This altered and veined section is followed by streaky sericite altered and foliated trachyte up to an irregular dyke of fine grained, orange red svenite from 309.46 to 309.72 at 39/82 degrees. Beneath the narrow dyke of syenite, the trachyte varies from dull brownish grey to grey green in colour with beige to yellowish alteration healing around fine fractures at generally shallow angles to the core axis. There appears to be some intermixing of tuffaceous material in this lower segment particularly from 310.81 to 311.12 at 67/47 degrees where there are some fine granular tuffs and coarser pyroclastic material with orange staining. There is also an irregular, 4 cm, porcelainous ankerite vein threading the core axis from 311.55 to 311.76 m accompanied by orange red staining, and, a more reddish toned trachyte segment from 310.06 to 310.22 with irregular contacts averaging 48/62 degrees.

The upper, brecciated, silica flooded et al section appears to cue around a narrow, 3 mm, alteration healed fault breccia threading the core axis from 308.08 to 308.92. The accompanying porcelainous ankerite veining brecciates the trachyte with strong orange red staining in addition to beige to vellowish tones from ankerite and sericite. The veining carries fine flashes of galena (??) locally with intergrown pyrite and accessory disseminated pyrite blebs to aggregates in the wallrock such that this overall altered section averages 5-7% sulphides. Magnetic susceptibilities are low in the altered zone from 0.48 to 0.80, versus 0.27 to 0.67 in the streaky sericite section, 0.31 to 0.41 in the syenite, and 0.56 to 17.9 in the balance of the system (2,93 to 17.9 in the tuffaceous segment). The lower porcelainous vein is quartz-ankerite. It similarly contains flashes of galena (grey to black streak) but pyrite is only developed in the adjacent orange red stained wallrock. Outside of the two veined sections, the sericite altered section, followed by the syenite, hosts 3-5% disseminated pyrite and pyrite aggregates, while the balance of the zone is very weakly mineralized with only up to trace to 1% pyrite over a few cms. Also outside of the veined sections, veining is weak although fractures with hematite +/- ankerite are common throughout. The lower contact is partly brecciated and orangish stained at 43 degrees.

#### 312.50 328.47 TRACHYTE TUFF

Return to another of the tuffaceous members characterized by a granular texture and assorted fine fragments - fragments are better defined in in this corridor. Intervals with coarser fragments to 3 cms in size persist - contacts range from gradational to sharp. Certain of the intervals with coarse fragments and sharp contacts look like rubbly flow top style material in the trachytes - the best evidence of this phenomenon is where there are some potential intercalated units of trachyte between 318.43 and 319.37 at 63/47 degrees, with 3.5 cms having coarser fragments and fine tuff at 318.82 at 72 degrees, and, 318.93 to 319.00 with coarser fragments and orange red staining at 33/45 degrees. Two further units of trachyte are noted near the

ample	From	То	Len	Sul	AU	AU1	AU2
NO.	(m.)	(m.)	(m.)	8	OZ/T	OZ/T	ppb
21752	307.90	308.50	.60	5 - 7	.040	.000	1359
21753	308.50	309.28	.78	5 - 7	.048	.000	1664
21754	309.28	309.72	.44	35	.060	.000	2073
21755	309.72	310.50	.78	TR	.002	.000	58
21756	310.50	311.50	1.00	TR	.001	.000	48
21757	311.50	312.00	.50	1-2	.006	.000	190
21758	312.00	312.50	.50	TR	.002	.000	51

21759	312.50 313.50	1.00	TR	.002	.000	82
21760	318.43 319.37	.94	NIL	.002	.000	60
21761	327.00 328.00	1.00	TR	.001	.000	29
21762	328.00 328.47	.47	NIL	.001	.000	31

From	То
(m.)	(m.)

Geology

Sample	From	То	Len	Sul	AU	AU1	AU2
NO.	(m.)	(m.)	(m.)	20	OZ/T	OZ/T	ppb

base of the system from 323.20-324.61 with irregular contacts at 24/35 degrees, and, 325.27 325.68 with similarly irregular contacts at 24/30 degrees - the intervening section 324.61 325.27 is also a coarser tuff with well defined fragments and blotchy orange red alteration to fragments of syenite to 5 cms in size. The tuff is also cut by two dykes of dull orange red to brick red syenite at 317.03 to 317.54 at 42/60 degrees, and, 319.70 to 319.78 at 60/71 degrees.

The contact zones of the tuffaceous package are ankeritic while the central zone is calcitic - first calcite noted at 314.9 m with more pervasive style alteration after 316 m to roughly 326 m, and the last calcite noted at 327.06. The rock is dark grey green to dark green in colour with variable reddish washes. Within the first trachyte interval, from 318.43 to 318.82, there is some bleaching with sericite and calcite. The rocks are also more strongly bleached and sericitic approaching the lower contact after 329 m, with the protolith becoming dull yellow green in colour and effectively obliterated after 329.23 m. Both veining and mineralization in the system are weak. Magnetic susceptibilities range from 0.37 to 16.0 in the trachyte (most under 5), 0.08 to 0.35 in the syenite, 0.88 to 7.47 in the altered lower contact, and, 2.78 to 50.2 in the tuffs (most greater than 10). Fracturing with hematite remains relatively common in the system. The lower contact is sharp but broken at 71 degrees.

## 328.47 376.54 SYENITE

Contact into what appears to be two dykes of syenite, separated by a granular textured tuff unit with coarser fragments and blotchy orange red staining from 351.28 to 352.93. The tuff unit has an irregular upper contact 83 degrees, with a sharp lower contact accompanied by a 7 mm at quartz-ankerite vein at 40 degrees (adjacent syenite is foliated and bleached). The upper dyke is much cleaner in nature than the lower member which contains a variety of larger fragments to inclusions and rafts of The rocks throughout are variably magnetic with foreign material. susceptibilities ranging from 0.08 to 12.2. Both dykes are orange red to brick red in colour. They contain numerous diffuse phenocrysts of feldspar to 3 mms in size in a very fine grained orange red matrix. The syenites are weakly to moderately reactive to the presence of ankerite and are weakly fractured with ankerite +/- quartz, chlorite and hematite. Rare pinkish calcite is noted along some fractures. The core is very weakly mineralized with pyrite. Sericite is a very minor component in the alteration but it is found around some fractures to veins and potential slips.

The upper dyke contains scattered irregular to ragged inclusions up to 7 cms in size. Inclusions vary from chloritic to cherty, trachytic and variably altered with ankerite, chlorite, sericite, epidote and hematite. The upper contact is very fine grained, bright orange red and more strongly fractured with chlorite, hematite and ankerite to 329.27. Also in the upper dyke is some accessory sericite alteration, bleaching and quartz veining with calcite from 342.45 to 342.60 framed by two veins - 7 cms at 62 degrees with calcite, and, 1.4 cms at 59 degrees respectively. There is some broken core between the two veins but no gouge or grit is noted.

21800	328.47	329.50	1.03	NIL	.004	.000	132
21801	329.50	330.50	1.00	TR	.001	.000	26
53476	340.54	341.50	.96	TR	.002	.000	62
53477	341.50	342.20	.70	TR	.002	.000	58
21763	342.20	342.80	.60	TR	.001	.000	43
21764	342.80	343.50	.70	TR	tr	.000	2
21765	351.28	352.00	.72	TR	tr	.000	14
21766	352.00	352.93	.93	TR-1	.001	.000	27
21767	352.93	353.88	.95	TR - 1	.001	.000	29
21768	353.88	355.02	1.14	TR - 1	tr	.000	14
21769	355.02	356.00	.98	TR	.001	.000	36
21770	360.50	361.00	.50	TR-1	.002	.000	75
21771	366.50	367.27	.77	NIL	.001	.000	48
21772	367.27	368.00	.73	NIL	tr	.000	4
53478	371.60	372.90	1.30	ΤŔ	.002	.000	72
21773	372.90	373.80	.90	NIL	.002	.000	72
21774	373.80	374.50	.70	TR	.059	.000	2033
21775	374.50	375.50	1.00	NIL	.005	.000	177
21776	375.50	376.54	1.04	NIL	.009	.000	322

From	То
(m.)	(m.)

Geology

Drill Hole AK-03 04 Page: 18 of 30 Sample From Sul AU AU1 AU2 TO Len OZ/T OZ/T NO (m.) (m) (m.) 2 ppb

FRP- This is typical Kirkland Lake type syenite porphyry with weak mm scale feldspar phenos in a fine grained matrix that contains mafic inclusions. Prior to the structure noted by Dale above, there are 2 veins/ faults at 340.66m- a 2cm quartz carbonate chlorite vein @ 65 TCA- and 341.36m- a carbonate chlorite slip @ 55 TCA. Both have mild alteration halos with anomalous fine sulphides.

351.28 352.93 Trachyte Tuff - the tuffaceous package between the two dykes. The tuff is dark green in colour with reddish tones and scattered coarse fragments to 3 cms in size as well as blotchy orange red staining and patches of syenite. There is up to 2-3% pyrite blebs and aggregates in this section over a few cms. The upper contact is irregular and partly silicified at 83 degrees - lower contact with a 7 mm quartz vein at 40 degrees.

The lower dyke is bleached, foliated and sericitic over 8 cms at 35 to 40 degrees adjacent to the tuff section. This dyke continues to have scattered irregular inclusions to a few cms in size but it also contains much larger inclusions to rafts up to a meter in size. Most of the larger inclusions appear to be conglomeratic with diffuse to partly absorbed contacts but some coarse tuffaceous material also appears to be present. There is one unit from 367.27 to 369.53, with sharp but irregular contacts at 38/50 degrees, that may represent a dyke of mafic syenite cutting the syenite dyke. It is a dull to earthy brick red colour with scattered fragments to 2 cms in size and rarer coarse fragments to 8 cms in size in a fine grained matrix with scattered feldspar metacrysts and blocky to subrounded and locally more acicular to wedge shaped blebs of chlorite, potentially after a variety of mafic minerals. Magnetic susceptibilities of this section vary from 5.16 to 11.1. Its contacts are sharp and partly bleached with an inclusion of orange red syenite at the upper contact suggesting the mafic syenite is younger (??) - the relationship is not entirely clear. The unit is weakly fractured and unmineralized.

Across this lower dyke, the core is more variably altered with ankerite resulting in more beige toned to earthy sections. There is also a little accessory quartz-ankerite veining in the system from 372.92 to 373.78 - 5-10% veining to 2 cms in size at an average of 65 to 70 degrees, but unmineralized. Wider inclusions persist to the lower contact which is sharp but irregular at 41 degrees. There is also a narrow, dull grey green, siliceous seam at 360.80, (1.7 cms at 25 degrees) that looks like an alteration healed fault (??) - trace pyrite.

FRP- Above the zone identified above, there is a 1cm Carbonate Chlorite Fault @ 65 TCA characterized by a 1cm wafer accompanied by crushing and greyish alteration with trace sulphides down hole to the veining.

#### 376.54 382.38 CONGLOMERATE

Contact into the first in a series of conglomerate units beneath the zone of

21777 376.54 377.50 .96 NIL tr .000 2

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From To (m.) (m	Geology	Sample No.	From To (m.) (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb				
	trachyte and syenite. The conglomerate looks only slightly different than the coarser tuff fractions but the matrix component, when visible, is more granular to gritty/sandy in appearance. The conglomerate is essentially a chaotic jumble of coarse and, to a lesser extent, fine polymict clasts. Cherty, porphyry, syenite, mafic and trachyte (??) pebbles in the system are found to more than 5 cms in size with subrounded to angular shapes. The rocks are poorly veined to fractured and are very sparsely to unmineralized. The central part of of the conglomerate from 377.4 to 381.60 is weakly fractured to locally more pervasively altered with calcite, while the contact zones are ankeritic - both contacts are with syenite. Magnetic susceptibilities range from 0.85 to 17.9 and are erratic. The matrix component is dull to dark grey green in colour with weak reddish castes. The lower contact is sharp at 58 degrees.	21778	381.50 362.3	3 .88	NIL	.035	.000	1200				
382.38 38	PORPHYRITIC SYENITE Contact into a dyke of relatively coarse grained syenite composed of numerous tabular to subrounded phenocrysts of feldspar to 5 mms in size along with some more hexagonal occurrences of nepheline in a very fine grained dull orange red to wine red groundmass that is flecked to speckled with chlorite that appears to be locally pseudomorphic after hornblende and amphibole. Several of the feldspar phenocrysts are zoned to twinned and variably orange stained. The dyke is weakly reactive to the presence of ankerite but there are some fine fractures with calcite from the top of the unit with slightly more pervasive alteration noted after 388 m. Calcite fractures are dominantly at 40 to 50 degrees to the core axis. The dyke is sparsely mineralized with trace only disseminated pyrite. Magnetic susceptibilities range from 0.93 to 1.86 within 50 cms of the upper contact and from 11.9 to 29.5 over the rest of the dyke. Fragments/inclusions of country rock are minimal in this dyke. The lower contact is sharp but irregular, averaging 44 degrees.	21779 21780	382.38 383.0 388.00 389.1		TR NIL	.006	.000	189 48				
389.12 39	.87 CONGLOMERATE Return to a conglomerate sequence. The conglomerate designation in this corridor is much better defined with coarse clasts up to 15 cms in size in a granular to gritty / sandy matrix that is locally more strongly mottled with chlorite +/- calcite. As before, the conglomerate is a chaotic mix of pebbles of all types and sizes with the coarse fragments being most noteworthy. Rarer fragments noted in this interval include a 3.5 cm by 2 cm iron formation fragment with bright orange red jasper near the top of the system (susceptibility of 113); an unusual, 7.5 cm spinifex textured, ultramafic fragment at the lower contact, and a 2 cm, triangular fragment of black chert with splashes of chalcopyrite at 394.04 m. The matrix component is dark grey green to dark green in colour with variable reddish castes. The	21781 33857 53482 21782 53483 21783	389.12 390.0 392.00 393.0 393.06 394.0 394.00 394.8 394.80 395.7 397.00 397.8	5 1.06 ) .94 ) .80 ) .90	NIL NIL TR TR-1 TR NIL	.000 tr .022 .084 .000 .002	.000 .000 .000 .000 .000	nil 5 768 2903 nil 65				

conglomerate and its fragments are weakly fractured to locally pervasively altered with calcite. Other than mineralized fragments, pyrite mineralization in the system is generally weak. Magnetic susceptibilities range from 1.02 to 44.9 (plus the 113 in the iron formation fragment) readings are erratic. The lower contact is sharp and runs along the core

axis for roughly 30 cms - ultimate contact at 12 degrees.

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To (m.)	Geology	Sample No.		ТО (m.)	Len (m.)		AU OZ/T	AU1 OZ/T	AU2 ppb

## 397.87 400.07 MAFIC SYENITE PORPHYRITIC SYENITE

Contact into the first two of a series of mafic syenite dykes that are cutting the conglomerate - the shallow upper contact threads the core axis to 398.30, with the main body of the dyke, or a second dyke, from 398.47 to 400.07 at 49/48 degrees. The mafic syenite is dull grey red to brick in colour with a very fine grained matrix. The dyke contains scattered phenocrysts of plagioclase as well as the altered equivalents of mafic minerals - blocky, to more acicular, wedge shaped and subrounded blebs to spots with chlorite and tremolite (??) +/- biotite after hornblende, amphibole, pyroxene (??) and biotite. The dykes also contain irregular fragments to inclusions of country rock to 3 cms in size. The dykes are pervasively calcitic and are weakly fractured with calcite +/- chlorite. Magnetic susceptibilities range from 11.3 to 17.2. The rocks are relatively hard and unmineralized.

FRP- The host has the appearance of a fine grained phase of fairly typical Timiskaming syenite porphyry. Well developed porphyritic texture is lacking however, there are scattered fine phenos in a fine grained groundmass and the typical 2-3% mafic inclusions.

## 400.70 402.98 CONGLOMERATE

Return to the coarse conglomerate with subrounded, polymict clasts to 9 cms in size. Susceptibilities range from 17.7 to 37.1. The unit remains calcitic and is very sparsely to unmineralized. The conglomerate is cut by a unit of mafic symple as above from 401.11 to 401.51 at 51 degrees - the dyke also contains some coarse fragments to 9 cms. Susceptibilities in the dyke range from 12.8 to 17.7. The lower contact of the conglomerate is sharp at 38 degrees.

### 402.98 406.67 MAFIC SYENITE PORPHYRITIC SYENITE

Contact into another mafic syenite dyke at 38/57 degrees. The dyke is grey red to brick red in colour and contains all of the elements of the prior dyke with scattered feldspar and an interesting array of altered mafic minerals. The dyke is pervasively calcitic, weakly fractured with calcite and chlorite and essentially unmineralized. Magnetic susceptibilities are relatively consistent from 13.0 to 18.0. The dyke also contains scattered foreign fragments to 4 cms in size. Both contacts are clean and sharp at 38/57 degrees.

FRP- As with the previous mafic syenite, this is a fine grained/ textured, weakly porpyritic syenite porphyry dike.

### 406.67 408.86 CONGLOMERATE

Return to the conglomerate host. This section is subtly darker grey to dark grey green in colour but fine to coarse fragments are well developed. The conglomerate is weakly fractured to pervasively altered with calcite and is 21784 397.87 399.00 1.13 NIL .001 .000 29

								2		
From	То	Geology	Sample	From	то	Len	Sul	AU	AU1	AU2
(m.)	(m.)		No.	(m.)	(m.)	(m.)	olo	OZ/T	OZ/T	ppb

unmineralized. Magnetic susceptibilities range from 6.82 to 27.3. The lower contact is sharp at 57 degrees.

### 408.86 428.72 MAFIC SYENITE PORPHYRITIC SYENITE

Contact into an almost continuous section of mafic syenite, interrupted by a narrow section of conglomerate from 409.87 to 410.09 at 73/31 degrees, and, a narrow section of granular to gritty conglomerate to wacke (no fragments noted) at 424.39 to 424.59 at 52/39 degrees. This is the most continuous section of mafic syenite. It varies little from the norm described above except that hornblende and amphibole are more readily visible locally. The sequence is weakly fractured with calcite and generally, pervasively calcitic. Pyrite mineralization is weak to absent. There are scattered irregular foreign fragments to 6 cms in size. Magnetic susceptibilities range from 5.13 to 19.7 with the majority of readings greater than 15 - readings of 4.41 to 9.94 in the conglomerate, and, 28.0 to 38.4 in the wacke. There is some accessory fracturing with quartz-calcite, bleaching with reddish tones and traces of fine pyrite over 9 cms from 411.0 to 411.09 - veins at 60 to 65 degrees.

FRP- This is a thicker syenite porphyry dike similar to those described above. Although the feldspar phenocrysts are not fully developed, other features such as the colour, texture, mafic inclusions, etc are typical of the syenite porphyry observed in the main part of the Kirkland Lake Camp.

There is also a 5 mm mud seam, flanked by a 1 cm quartz-calcite vein at 412.46 at 24 degrees, unmineralized. It is coded as:.

412.40 412.53 Fault gouge.

The lower contact of the mafic syenite is sharp with an orange red syenite at 34 degrees - the orange red syenite is slightly bleached but the relative ages are unclear. The orange red syenite is only slightly harder than the mafic syenite.

425.00 425.01 Fault Zone FRP - This is a 1cm Carbonate Chlorite Fault/ vein @ 55 TCA with mild alteration in the walls and crushing up to a Chlorite Carbonate Slip @ 80 TCA about 15cm up hole. There are anomalous sulphides in the structure but only trace in the walls.

### 428.72 436.83 SYENITE

Contact into a short unit of dull to bright orange red syenite. The unit is very fine grained without any megascopically visible feldspar although the dyke locally exhibits a more granular texture from a speckling with chlorite after mafic minerals. The rock is weakly fractured with calcite +/- chlorite and is locally pervasively calcitic. The syenite is better mineralized than the norm with trace to 1% disseminated pyrite blebs to aggregates with a local weak fracture control. Magnetic susceptibilities are erratic from 0.25 to 30.2. The dike also carries rare, irregular inclusions of foreign

21785	410.90 4	11.40	.50	TR	.002	.000	53
21786	411.40 4	12.30	.90	NIL	.001	.000	41
21787	412.30 4	12.80	.50	NIL	.004	.000	127
53479	424.71 4	25.14	.43	TR	.002	.000	75
21788	428.00 4	28.72	.72	NIL	tr	.000	15

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21789	428.72	429.50	.78	TR - 1	.002	.000	74
21790	429.50	430.50	1.00	TR-1	.004	.000	127
53480	433.59	434.00	.41	1	.004	.000	121
53481	434.00	435.00	1.00	TR	.001	.000	33
21791	435.00	436.00	1.00	TR	.003	.000	86
21792	436.00	436.83	.83	TR-1	.003	.000	91

			:	Drill Ho	le AK 03	-04	Pa	ige: 22	of 30	
From (m.)	To (m.)	Geology	Sample No.	From (m.)	ТО (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
		material to 2.5 cms in size. The lower contact is sharp with veining at 22 degrees.								
		433.80 433.81 Fault Zone FRP - This is a tight Chlorite Mud Fault @ 75 TCA with chloritic crushing a few cms into the walls and 1% sulphides over 15cm in the walls.								
436.83	446.61	MAFIC SYENITE PORPHYRITIC SYENITE Return to mafic syenite, suggesting that it is the older of the two syenite phases. The dyke is similar to the previous units with scattered feldspars, a variety of mafic minerals and a weak to locally moderate, calcite overprint. This dyke also grades greyer in colour with depth from brick red at the outset, to more of a reddish grey circa 440 m which continues to grade greyer but is still a reddish grey by the end of the zone. The dyke is crudely fresher in appearance in the greyer portions with acicular amphibole needles and isolated spots of biotite but most of the mafic minerals continue to be strongly altered with chlorite. The dyke is weakly fractured with calcite and is essentially unmineralized. Magnetic susceptibilities range from 7.33 to 18.2. Fragments of foreign material to 3 cms in size persist into this segment, plus there is one wider inclusion of potential green, chloritic wacke from 440.79 to 441.03 m with very irregular but sharp contacts at 47/53 degrees - no fragments noted, contacts vary from 5 to 68 degrees. The lower contact is clean and sharp at 31 degrees.	21793 21794		437.50 446.61	.67 .61	NIL NIL	.200 tr	.000	67 10
		FRP- Again, this is a syenite porphyry dike similar to those described above.								
446.61	472.33	CONGLOMERATE Return to Conglomeratic rocks with well developed coarse, polymict pebbles to 10 cms in size. With depth, clasts are more widely separated and a first segment of wacke enters the system between 465.21 and 465.82 - contacts irregular with coarse pebbles such that there is no sense of top direction. The wacke has a granular to gritty/sandy matrix and scattered fragments to 5 mms in size. At the lower contact, from 470.87 to 472.33, there is an increasing wacke component with more scattered coarse fragments to only 3 cms in size marking the transition to a wacke package after 472.33. There is trace to 1% pyrite in this lower contact interval, otherwise the conglomerate is unmineralized. The rocks are weakly fractured with calcite with local pervasive alteration. Magnetic susceptibilities range from 0.93 to 90.1 reflecting the variable magnetic properties of the fragments although most readings are greater than 20. There is a little accessory sericite and chlorite streaky alteration associated with a fragment (??) at 461.10 - over 3.4 cms (trace pyrite here as well). The lower contact at the lowest of the fragmental horizons is sharp at 54 degrees.	21795 21796 21797 21798	461.00 470.50	447.50 462.00 471.50 472.33	.89 1.00 1.00 .83	NIL TR TR-1 TR-1	tr .001 tr tr	. 000 . 000 . 000 . 000	2 34 15 3
472.33	536.00	GREYWACKE Transitional contact into a package of wackes. As noted in the conglomerate interface, the wackes have a fine gritty to sandy matrix. They vary from medium to dark grey green in colour with variable reddish washes. Down hole,	21799	472,33	473.00	.67	TR	.000	.000	nil

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From (m.)	TO (m.)	Geology	Sample No.	From (m.)	T0 (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
		<pre>they become more uniformly dark brownish grey. The wacke has fragment lean sections intercalated with sections that are peppered with fine angular fragments to 5 mms in size of which the bright orange, jasper chips are diagnostic but not prominent. Coarser fragments to 4 cms in size are present but are rare as are gritty lenses. With the massive nature of the wacke, bedding features are weak and difficult to pinpoint but appear moderate at about 30 TCA. The rocks are weakly fractured with calcite and minor epidote at generally very shallow angles to the core axis and are very sparsely mineralized; there is no associated wallrock alteration. Magnetic susceptibilities undulate widely within a range of 3.14 to 42.2. The higher values may indicate higher percentages of magnetic tuff component within the overall wacke assemblage. 508.96 508.98 Mafic Intrusive - Just a 1.5cm sliver of a weakly porphyritic, charcoal grey mafic dike that cuts the core @ 35 TCA.</pre>								
536.00	545.66	CONGLOMERATE	21802	543.10	5 544.40	1.24	TR	tr	.000	10
		The transition from wacke to conglomerate is natural but fairly abrupt through an irregular contact; lenses of pebbly wacke are scattered through the more massive greywacke unit that follows. Overall, the conglomerate is typical as described previously, polymictic, clast supported with wacke matrix and lenses, fresh, dark green grey and supporting almost no veining, mineralization or deformation. The few fractures and veinlets present are calcitic. MS values range between 24 and 46, averaging approximately 30.								
		543.20 543.23 Fault Zone - More a very weak Epidote Carbonate Crush Fault/ Slips @ about 70 TCA, this structure reflects a series of weaker slips that follow.								
		544.32 544.34 Fault Zone - This is another weak calcite quartz fracture @ 45 TCA with the odd speck of sulphide.								
545.66	632.00	GREYWACKE								
			21803		3 572.36	.48	TR	tr	.000	14
		A return to massive fine grained wacke occurs through another natural	21804		5 572.78	.42	0.5	.001	.000	22
		contact as mentioned above. Pebbly lenses and scattered isolated pebbles are	21805		3 573.40	.62	TR	tr	.000	9
		common in the dark brownish coloured, fine grained massive wacke unit.	21806		3 579.37	.44	TR	tr	.000	10
		Epidote calcite veinlets and stringers amount to about 0.5% of the host but	21807		5 594.60	1.24	TR	tr	.000	5
		mineralization remains negligible. Although the susceptibility remains	21808		595.22	.62	0.5	.002	.000	53
		fairly high, in the 17-36 range, indicating a significant tuffaceous	21809		2 596.00	.78	TR	.000	.000	nil
		content, fine rare jasper chips/ grains attest to a sedimentary origin.	21810		596.85	.85	TR	.000	.000	nil
		TAD OF SED 77 Developments of the trade of the second second second	21811		5 597.76	.91	TR	.000	.000	nil
		549.95 550.77 Porphyritic Syenite - At this point, the wacke is cut by a	21812		4 601.58	.84	TR	.000	.000	nil
		thin syenite porphyry dike that intersects the core @ about 15	21813		0 606.80	1.30	TR	tr	.000	3
		TCA. It is fine to medium grained, dark brown grey coloured,	21814		0 608.00	1.20	TR 0.5	.001 tr	.000	48 3
		massive with mafic inclusions or embayments of the wacke. Fine, pink feldspar phenocrysts to a couple of millimeters in	21815 21816		0 608.70 0 609.29	.70 .59	0.5	.001	.000	3 22
		Fine, pink relaspar phenocrysts to a couple or millimeters in	21816		0 610 25	.59	∠ תיד	.001	.000	10

size are scattered through the fine grained groundmass 21817 609.29 610.25 .96

TR .001

.000

18

From (m.)	То (m.)	Geology	Sample No.	From To (m.) (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
		imparting the porphyritic/ speckled texture. Mineralization is	21818	610.25 610.6	0.35	0.5	tr	.000	2
		nil, fractures, calcitic and MS values average 6.5.	21819	610.60 611.8	0 1.20	TR	.000	.000	nil
			21820	611.80 612.5	3.73	TR	.000	.000	nil
		550.77 591.80 Greywacke Tuff · Basically, this is a continuation of the	21821	612.53 612.9	0.37	0.5	.000	.000	nil
		wacke as described at the start. The susceptibility continues	21822	612.90 614.0	0 1.10	TR	.000	.000	nil
		to fluctuate between 3.50 and 30.0 with a very high spike of	21823	614.00 614.6	2.62	2	.000	.000	nil
		61 at 52.50m. Subtle changes in colour combined with the	21824	614.62 615.8	3 1.21	TR	.000	.000	nil
		undulating magnetics indicate variable tuff and greywacke	21825	615.83 617.0	0 1.17	TR	.000	.000	nil
		mixes in the unit. Colour changes to more reddish tones also	21826	617.00 618.1	5 1.15	TR	.000	.000	nil
		mark transitions into more trachytic phases, particulrly	21827	618.15 619.1	9 1.04	TR	.000	.000	nil
		around 579.05- 580.10m, which is agglomeratic. Coincident	21828	619.19 619.6	0.41	0.5	tr	.000	3
		reduction in the MS values to 5-8, may also reflect the	21829	619.60 620.9	3 1.33	TR	.000	.000	nil
		possibility of reduction of magnetite to hematite through	21830	620.93 621.7	4 .81	TR	.000	.000	nil

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21831 621.74 622.38

21834 627.47 628.20

21835 628.20 628.84

21836 628.84 629.72

622.38 623.31

626.78 627.47

21832

21833

.64

.93

.69

.73

.64

88

TR

TR

0.5

TR

TR

ΤR

.001

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.000

21

24

17

51

21

nil

- mixes in the unit. Colour changes to more reddish tones also mark transitions into more trachytic phases, particulrly around 579.05- 580.10m, which is agglomeratic. Coincident reduction in the MS values to 5-8, may also reflect the possibility of reduction of magnetite to hematite through alteration. Using the criteria of the presence of jasper grains, chips and pebbles to define a sedimentary origin for the host, it should be noted that jaspers were observed, however sparse, throughout the interval, including the gritty to pebbly lense over the lower metre of the interval. Alteration comprises weakly reddened (hematized/ trachytic?) zones and 1-2% scattered dull white to pink calcite veinlets and stringers; the matrix is also weakly calcitic locally. Mineralization is trace except as noted.
- 572.63 572.67 Quartz-Carbonate Vein Zone This is a mottled dull grey and light salmon pink calcite quartz vein with bounding chlorite slips @ 75 TCA. There are only trace sulphides in the vein, but, for 20cm down hole, the walls are mildly sericitized adjacent to a couple of parallel chlorite carbonate quartz fractures/ slips that contain streaks and disseminations of pyrite and chalcopyrite that may amount up to 0.5% over about 25cm.
- 579.04 579.06 Fault Zone Very, very weak, this chlorite calcite slip @ 55 TCA is only noteworthy because there are a few streaks of sulphide in the wall of the slip.
- 593.36 597.76 Greywacke (altered) This is a typical section of greywacke, complete with jasper grains, that becomes progressively more altered towards a central structure at 595m. The wacke lightens gradually through medium violet grey, to light to medium creamy yellow grey, becoming choppy/ grungy medium orange, yellow/ lime green and medium grey green in the FAZ at the core of the deformation. Down hole, it again darkens to medium yellowish- brownish- pinkish grey to the end. The central FAZ comprises a bleached and crushed core from 594.60-595.22m that includes a series of chlorite slips @ 60 to 75 TCA and a 1cm pink calcite vn/ fault @ 60 TCA. Part of the zone is very strongly chlorite crushed/ fractured with mud slips @ 75 TCA and ground core. The MS values drop below 1 over this entire interval. Associated with the FAZ is yellow sericitization in fine fractures and foliation planes as well

From	То
(m.)	(m.)

8

OZ/T

OZ/T

daq

NO.

(m.)

(m.)

as maroon black specularite and green black chlorite in the fractures, along with streaks/ clots of pyrite and minor chalcopyrite. Sulphides amount to about 0.5% in the fault zone and trace to anomalous overall in the interval. Several chlorite alteration slips paralleling the main structures continue downhole. The veinlets and fractures are mainly calcitic but very minor ankerite is also present as indicated by staining. The central FAZ is broken out below as:.

594.60 595.22 Fault Zone - see description above.

- 601.30 601.37 Fault Zone Certainly weaker then the previous zone, this appears to be a combination chlorite carbonate alteration slip @ 60 TCA with a possible conjugate alternation slip @ 25 TCA. The strongest alteration is in the walls of the slips although weaker brownish grey alteration continues for several decimeters in the walls along with anomalous pyrite and chalcopyrite (<0.5%).
- 605.50 629.72 Greywacke (weakly altered) This interval includes a number of weak structures, mainly minor chlorite- carbonate alteration slips, around which the wacke has been moderately to mildly altered. Alteration generally encompasses a lightening of the host to light to medium buff/ olive grey through bleaching/ sericitization, carbonatization, and weak pyritization. Of note is the fact that the carbonate minerals are mixed throughout the interval with ankerite being dominant in the matrix and some veinlets while calcite occurs as pink coloured veinlets. The more prominent structures are described separately below. MS values undulate between 0.50 and 17.0, the lower values generally coincident with the more strongly altered zones. Mineralization ranges up to 2% over 10- 20 cm in the walls of the structures and is generally anomalous but averages trace overall.
- 605.99 606.03 Quartz-Carbonate Vein Zone A dry looking dull grey carbonate guartz vein @ 65 TCA, it contains weakly altered and mineralized walls.
- 609.11 609.13 Quartz-Carbonate Vein Zone This narrow quartz carbonate vein seems to form the focus of moderate chlorite and carbonate fracturing of the immediate walls as well as up hole for about a metre. Associated with the structure is moderate sericitization over 0.5m around the vein and mild to moderate alteration beyond; pyrite and minor chalcopyrite mineralization amounts to approximately 2% over 0.5m near the vein and 0.5% uphole.
- 612.67 612.69 Fault Zone This is a strong chlorite slip @ 85 TCA with a 2cm tan and dull grey carbonate guartz breccia vein. There is a halo of 0.5-1% sulphides over about 10cm of moderately

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From (m.)	Geology	Sample No.			Len (m.)			AU1 OZ/T	AU2 ppb

altered wallrock. A weak 3cm wide dull grey guartz carbonate vein cuts the core @ 70 TCA 15 cm down hole.

- 614.00 614.62 Greywacke (altered) The only apparent structure in the interval comprises a central 3mm pink carbonate vein @ 55 TCA which seems to be the focus of fairly intense fracturing and moderate alteration. Unusually, the fractures contain about 2% sulphides as fracture fillings, clots and disseminated grains. Mild alteration with no obvious associated structures continues down hole with trace to anomalous sulphides.
- 619.33 619.36 Quartz-Carbonate Vein Zone The zone comprises a leading Chlorite Fault structure @ 85 TCA with trailing porcelainic ankerite quartz vein. About 1% pyrite occurs in the walls over 10cm.
- 621.40 621.50 Fault Zone The interval actually comprises a triangular patch of medium green chloritic crushing/ alteration between a leading ragged chlorite slip @ 30 and a trailing one @ 80 TCA. The walls are light pink grey altered but are not mineralized. Apart from a few isolated patches of carbonate veining there is little alteration until the next structure.
- 626.97 626.98 Fault Zone This Chlorite Fault @ 85 TCA leads another section of mildly altered medium blue grey wacke that continues for about 2m down hole. A second tight Chlorite Fault cuts the core @ 85 TCA at 628.38m. Mineralization in the wall of the upper fault amounts to 0.5% but is trace to 629.0m.
- 629.66 629.72 Fault Zone A ragged Calcite Breccia Fault @ 45/ 50 TCA ends the general interval of mild alteration. A few specks of chalcopyrite and pyrite occur in the vein/ fault and walls. At this point, ankerite is replaceed by calcite as the dominant carbonate mineral.

## 632.00 644.43 CONGLOMERATE

Although there are pebbly and gritty lenses in the wacke unit described above, the point taken as the leading contact represents a transition into massive conglomerate units with only minor wacke lenses. The contact is gradational through grit zones with progressively more pebbles into the typical Timiskaming, polymictic, clast supported conglomerate. The colour darkens- ie host is fresher- to dark brownish grey. Light pink to white calcite veining accounts for about 1% of the zone; mineralization is trace. As expected, the susceptibility oscillates between lows of 3.0 and highs to 12.0. Approaching the lower lower contact, the grain size gradually decreases to the point where there are no more pebbles and the host becomes fine grained wacke.

632.64 632.67 Fault Zone - Another tight Chlorite Fault cuts the core @ 55

nil 21837 632.40 633.00 .60 0.5 .000 .000

From	То	Geology	Sample	From	То	Len	Sul	AU	AU1	AU2
(m.)			NO.	(m.)	(m.)	(m.)	90	OZ/T	OZ/T	ppb

TCA. As with previous faults, the walls are mildly chlorite fractured and altered. Sulphides amount to 2% over about 20cm in the walls.

## 644.43 664.15 GREYWACKE

As mentioned above, the contact is gradational into the wacke which is fine grained, massive, relatively fresh, medium to dark blue to green grey with the odd gritty zone and scattered pebble. Jasper grains are also prominent throughout the zone. Mineralization is trace except as noted and 1% light pink veining is calcitic. The MS values start at 4.37 near the contact but gradually decrease to a relatively stable platform of 0.40.

- 647.62 647.66 Carbonated Zone ~ This is a very unusual pink calcite specularite vein @ 60 TCA. There is a 20cm halo of weak (about 0.5%) disseminated pyrite in the walls.
- 650.95 650.96 Fault Zone This is a tight Carbonate Alteration Fault © 85 TCA. The fault is characterized by a 4mm wafer of light pink calcite with flanking chlorite slips and about 15cm of light olive grey carbonate- sericite alteration. Within the alteration halo, there are about 0.5% sulphides in fractures and as disseminations. There are also a few scattered parallel chlorite slips over approximately 0.5m up and down hole.
- 653.00 664.15 Greywacke In this section of the wacke, the magnetic susceptibility starts to fluctuate again within a range of 0.70 to 8.00 indicating input of a more magnetic (tuff?) component although the presence of jasper chips also suggests that it remains primarily sedimentary in provenance. Alteration remains mild and calcitic with 1% fine dull white calcite veinlets; sulphides are trace except as noted. Fracturing and alteration increase slightly approaching the major FAZ at 664.15m below.
- 653.36 653.37 Fault Zone This is another of the carbonate chlorite alteration slips @ 85 TCA that parallels the structure above. Up hole, the alteration extends about 10cm whereas down hole, it is negligible but has been replaced by moderate crushing and 2% sulphides for 20cm.
- 655.26 655.40 Quartz-Carbonate Vein Zone Again, this is a misnomer. The veins are up to 0.5cm and amount to about 8% of the core. They are calcitic, with no alteration of the walls, but, do contain halos of strong pyrite mineralization amounting to perhaps 4% of the interval. The zone is preceded at 554.60m by a spidery pink patch of calcite.
- 658.71 658.73 Quartz Vein Zone The interval consists of a 1cm ragged dull grey pink quartz carbonate vein @25 TCA with clusters and

22	.000	.001	0.5	.38	647.81	647.43	21838
17	.000	.001	0.5	.83	651.23	650.40	21839
nil	.000	.000	TR	1.13	652.36	651.23	21840
48	.000	.001	TR	.64	653.00	652.36	21841
58	.000	.002	TR	1.35	654.35	653.00	21842
3943	.000	.115	0.5	1.15	655.50	654.35	21843
41	.000	.001	TR	.89	656.39	655.50	53484
34	.000	.001	TR	1.10	657.49	656.39	53485
nil	.000	.000	TR	.96	658.45	657.49	53486
70	.000	.002	0.5	.42	658.87	658.45	21844
65	.000	.002	TŔ	.92	664.15	663.23	21845

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				Drill Hole AK-03 04					Page: 28 of 30				
From (m.)	TO (m.)	Geology	Sample No.		To m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb			
		fractures of pyrite in the walls.											
664.15	667.93	FAULT ZONE This represents the actual core of the FAZ, however, the alteration and ancillary structures continue down hole to 678.80m. The FAZ is characterized	21846 21847 21848	664.15 6 665.00 6 665.88 6	65.88	.85 .88 1.20	1 2 1	.003 .002 .002	.000 .000 .000	103 62 82			
		by strong crushing/ cataclasis of the host wacke and an early stage of dull grey/ pink calcite quartz veining. The fragments are angular and cemented by dark green black chlorite and secondary calcite; leading, trailing and internal structures generally trend @ 40 -45 TCA. Although the structure is fairly strong, the degree of alteration is mild to moderate and accompanied by a 0.5- 2% sulphides. MS values fall within a narrow range of 0.19 0.29.	21849	667.08 6	68.00	.92	0.5	.003	.000	110			
667.93	677.60	GREYWACKE					0 5						
			21850	668.00 6		.90	0.5	.002	.000	82			
		This section of the greywacke is moderately to mildly altered and moderately	21851	668.90 6		.82	1	.002	.000	65 31			
		fractured/ crushed. Both the alteration and the fracturing are related to a number of moderately strong fault structures and silicified patches that are	21852 21853	669.72 6 670.18 6		.46 1.01	1 0.5	.001	.000	755			
		described separately below. The wacke is fine grained, massive with local	21853	670.18 6		.81	0.5	.022	.000	398			
		gritty and pebbly zones, and medium brown to orange grey coloured. Fractures	21854	672.00 6		.81	0.5	.012	.000	840			
		and 0.5% carbonate veinlets are calcitic with a 10cm creamy pink calcite	21855	672.41 6		.99	TR	.016	.000	538			
		fault @ 25 TCA ending the zone. Mineralization is variable throughout (trace	21857	673.40 6		.90	TR	.062	.000	2126			
		to 2%) but seems to increase in conjunction with the faults and silicified	21858	674.30 6		1.10	0.5	.003	.000	105			
		zones while MS values fluctuate between 0.10 and 0.43.	21859	675.40 6		1.05	0.5	.007	.000	225			
			21860	676.45 6	77.29	.84	0.5	.064	.000	2184			
		669.85 669.95 Fault Zone - The structure comprises a 2cm wide carbonate chlorite vein with crushing and grungy medium pinkish/ brownish grey alteration up and down hole (0.5 and 1m,	21861	677.29 6	77.6 <b>7</b>	.38	TR	.115	.000	3960			

sulphides.
672.15 672.25 Fault Zone - This is another carbonate chlorite vein at about
05 TCA. Up hole over 0.70m, the wacke is moderately
microfractured, medium brick orange coloured (hematized?), and
sprinkled with 0.5-1% finely dissemenated sulphides. Down
hole, the leading metre is well crushed with chloritic
fractures and medium olive and brown grey altered and then
mild brick orange altered for another 1.5m. This is followed
at 674.40 and 675.20m by weak patchy dark brown grey

respectively). Fracturing is random but the vein cuts the host @ a low angle (05 degrees) TCA. The walls contain 0.5-1%

silicification over about 15cm. Overall, mineralization is

anomalous and locally reaches 0.5% sulphides over 20cm.

674.40 677.49 Greywacke (altered) - Following the last silicified patch, the core lightens to pale brownish and blue grey. The interval is well microfractured with calcite filling the fractures and is also mineralized with 0.5-1% fine disseminated sulphides and fracture fillings.

				Drill Ho	le AK-03	-04	Pa	.ge: 29	of 30	
From (m.)	To (m.)	Geology	Sample No.	From (m.)	T0 (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
		677.49 677.60 Fault Zone - A streaky Calcite Chlorite Fault @ 25 TCA ends the alteration zone described above. Overall, it is creamy pinkish white with dark green chlorite streaks and bright orange carbonate?/ barite? patches and streaks.								
677.60	679.38	TRACHYTE This appears to be a different unit rather than an alteration of the wacke. The host is fine grained, massive, light to medium grey to olive green coloured with a felted texture rather than granular. This may be a function of an unusual type of felty/ feathery fine chlorite or actinolite alteration of the matrix or may represent a mafic to intermediate trachytic flow as hypothesized. If this is an alteration feature, then it does not seem to be related to any obvious structure, and, in addition, the lower contact is not gradational into unaltered wacke but appears to be in sharp contact with fresh fine grained wacke. It is mineralized with trace to 1% disseminated pyrite. The unit is cut by 10% pale pink calcite patches and veins, the largest of which at 678.70m, is 20cm thick and cuts the core @ 65 TCA. MS values fall within a range of 0.23 to 0.57.	21862 21863		678.80 679.50	1.13 .70	TR TR	.002	.000	65 39
679.38	713.10	GREYWACKE Through a natural contact @ about 60 TCA, the greywacke unit continues relatively fresh down hole with the exception of weak alteration in the walls of a couple of minor structures near the start. Overall, it is massive, fine grained with numerous gritty and some pebbly zones, medium to light blue grey coloured and mildly altered with numerous scattered red jasper grains. Unusually, there are several sections, apparently unrelated to any structures, that contain anomalous to 0.5% disseminated pyrite over a metre or so which were randomly sampled. These are generally associated with correspondingly lower MS values but not necessarily with increased alteration; values range between 0.20 and 12.0 to 692.0m beyond which the wacke becomes dark grey and the susceptibility falls into a higher overall range of 3.00 to 23.0. Outside of the minor structures, calcite veinlets amount to <0.5% of the wacke. 683.11 683.16 Quartz-Carbonate Vein Zone - This is a mossaic textured	21864 21865 21866 21867 21868	683.51 684.45 691.63	683.51 684.45 685.42 692.50 700.88	.51 .94 .97 .87 .74	0.5 0.5 0.5 1 0.5	.001 .001 .001 .001	.000 .000 .000 .000	17 34 26 49 21

- 683.11 683.16 Quartz-Carbonate Vein Zone This is a mossaic textured porcelainic calcite quartz vein @ 55 TCA which is followed by moderate crushing and 2 parallel carbonate chlorite slips @ 58 TCA down hole at 683.44m. The MS values drop to 0.19 in this zone; sulphides average 0.5%.
- 700.46 700.47 Quartz Vein Zone This narrow light pinkish blue quartz vein @ 40 TCA is near the centre of a mildly altered and moderately fractured section that extends from 700.14 to 700.88m. The stronger chlorite carbonate slips parallel the main vein whereas most are random. Approximately 0.5% sulphides occur in the walls of the fractures and the MS values dip to 0.22-0.66 over the interval.

					Drill Hole AK 03 04					
From (m.)	To (m.)	Geology	Sample No.	From (m.)	TO (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
713.10	722.85	CONGLOMERATE Back to a typical Timiskaming type conglomerate through a natural gradational contact, the host is unsorted, polymictic, clast supported with greywacke matrix and lenses, in fact, a section within the last metre that appears vuggy, contains pebbles with almost no matrix. The overall colour is dark grey which reflects the weak/ mild alteration; calcite veinlets are negligible. There is no structural overprint or significant sulphides except as noted below. The susceptibility, which ranges between 15 and 31, averages about 20.	21869	716.99	5 717.32	. 37	0.5	.001	.000	31
		717.16 717.18 Fault Zone - Almost insignificant compared with other faults, this zone comprises a lcm chlorite carbonate vein/ slip @ 55 TCA with weak parallel fractures and 2% sulphides over 5cm in each wall.								

722.85 750.70 GREYWACKE

Following the vuggy looking conglomerate lense with the open spaces between the pebbles, greywacke again becomes the host. As before, it is fine grained, fresh to weakly altered and fractured, dark greenish grey, and massive with local gritty and pebbly lenses. Apart from an irregular, vuggy, spider like carbonate veinlet zone over 25cm at 724.10m, veining is negligible. The few veinlets that are present, are calcitic to the end of the hole. Mineralization consists of a few scattered pyrite grains and fracture fillings in weakly altered areas. The MS values generally fall into a lower range of 7.00- 21.0 with an odd low of 3.47 immediately beside a spike of 45.1 at 736.30m; the average is estimated at 10.0.

745.26 750.70 Conglomerate - This section comprises typical Timiskaming conglomerate as described previously.

750.15 750.16 Fault Zone - A trailing crush Chlorite Slip @ 35 TCA, this relatively weak structure with 10-15cm of moderate fracturing down hole trails off near the end of the hole. The immediate wall of the fault contains a few scattered pyrite cubes.

750.69 750.70 End of hole - The hole ends in relatively fresh conglomerate.

	Drill Hole:	AK03-05A										
			DIAMOND DRIL	L HOLE RECORD					F	age: 1	L of 3	
	Property:	AMALGAMATED KIRKLAND										
	Northing:	10320.00										
	Easting:	8500.00										
	Elevation:	338.00	*** Dip Tests ***	*** Dip Tests *	* *		Date S	Started:		April	4, 2003	
			Depth Azi. Dip	Depth Azi. Di	р		Date C	Complete	d:	April	4, 2003	
	Collar Azimuth (G	Frid) .00										
	Collar Dip:	55.00					Drille	ed by:		BENOIT	ſ	
	(O Degrees Grid e	equals 341 degrees True)					Core S	Size:		NQ		
	Hole Length:	16.30					Materi	al left.	in hol	e NX CAS	SING	
							Core I	location	:	Upper	Canada S	ite 1
	Date Printed:	19 Apr, 2004					Logged	l by:		FR Plc	beger	
From	То		Geology		Sample	From	То	Len	Sul	AU	AU1	AU2
(m.)	(m.)				No.	(m.)	(m.)	(m.)	Ŷ	OZ/T	OZ/T	ppb
	SUMMARY I	JOG										

- .00 2.40 OVERBURDEN
- 2.40 4.62 TUFF TRACHYTE

4.62 16.30 GREYWACKE



42A01NE2063 2.28405 TECK From To (m.) (m.) Geology

	DITT IC	ale akus	5-05A	1.	age: z	01.3	
Sample	From	То	Len	Sul	ΛU	AU1	AU2
No.	(m.)	(m.)	(m.)	*	OZ/T	OZ/T	ppb

----

### .00 2.40 OVERBURDEN

The drillers report the casing being driven to 6m although the footage blocks indicate only 2.4m of actual overburden.

## 2.40 4.62 TUFF TRACHYTE

This is a questionable lithology that exhibits both flow and fragmental characteristics. In general, the unit has a granular appearance throughout but the clasts seem to have indistinct boundaries in many cases and are elongate/ flattened? without any indication of a tectonic fabric. A section in the middle of the zone near 3.85m contains 4 small jasper chips indicating a sedimentary component to the unit as well. The lower contact is sharp natural and very fine grained to aphanitic @ 45 TCA, and, with everything considered, appears quenched or chilled. Throughout the unit, there are fine mafic grains/ laths that, in places, resemble mafic (pyroxene?) phenocrysts in a flow sliver, and, in others, seem to be distict fine fragments. At 4.30m, there is a fine grained section of wacke (containing a fine jasper chip) and larger grey mafic pebbles to 3cm in length.

The combination of textures, including minor wormy/ zoned fine hyaloclastite- like quenching?, may represent a welded tuff unit deposited into the sedimentary basin. This may explain the chilled contact, the inclusion of wacke, the mafic phenos in flow and fragmental settings the 'soft' margins and the flattening of many of the grains and clasts. It probably has a mafic trachyte affinity although at an average of 0.25, the susceptibility does not reflect the normal high values of a typical trachyte. The unit is mildly to moderately pervasively altered to light to medium grey with bluish and vellow green washes. Alteration consists of occasional fine white carbonate veinlets (<<0.5%) and pervasive carbonatization, in this case, ankerite, of the matrix. Local rusty/ oxidized slips are indications of ground water movement near surface. Mineralization comprises a few disseminated pyrite grains and minor streaks of sulphides in fractures and wall of veinlets amounting to trace overall.

### 4.62 16.30 GREYWACKE

Through the apparently chilled contact described above, the rock becomes a fine grained massive greywacke. Uncharacteristically, the wacke does not contain any gritty lenses, only rare greyish yellow pebbles and fine jasper chips/ grains that are visible with a lense. It appears completely massive with no indications of bedding or interbedded finer sediments. Similar to the tuff, the wacke is moderately to mildly altered light to medium yellowy grey, becoming slightly lighter, more strongly altered, down hole. The yellow colouration is due in part to an increase in the sericite, as well as, ankerite alteration of the matrix. MS values are stable in the 0.06 to 0.16 range, averaging about 0.10. Sulphides, trace overall, are confined to grains and streaks associated with the 0.5% white ankerite- quartz veins/

21870	14.23	15.59	1.36	TR	.001	.000	27
21871	15.59	16.30	.71	TR	.001	.000	46

			Drill Hole AK03-05A				Р			
From (m.)	Το (m.)	Geology	Sample No.			Len (m.)		AU 02/T	AU1 OZ/T	AU2 ppb

veinlets that cut the host. Many of the veins and fractures are oxidized.

- 14.45 14.46 Carbonated Zone A lcm wide carbonate quartz vein cuts the core @ 40 TCA. The vein is partially oxidized and contains only a fine pyrite speck.
- 15.82 15.85 Carbonated Zone As above, this is a carbonate quartz vein @ 60 TCA that is also partially oxidized. In contrast with the previous one, it contains several coarse streaks of pyrite and chalcopyrite in the vein, perhaps amounting to 3% over 5cm.
- 16.30 16.40 End of hole According to the drillers block the hole ends at 16.40m indicating that about 10cm was lost at the bottom of the hole. In a conversation with the drill foreman, the hole had to be abandonned when the bit was fried due to lack of water.

QUEENSTON MINING INC

			Qu	JEENSION :	MINING INC								
	Drill Hole:	AK-03-05											
			DIAN	NOND DRIL	L HOLE RECORD					I	vage: 1	l of 23	
	Property:	AMALGAMATED KIRKLAND											
	Northing:	10322.00											
	Easting:	8500.00											
	Elevation:	338.00	*** Dip Tes	sts ***	*** Dip Te	ests ***		Date S	Started:		April	4, 2003	
			Depth Azi.	Dip	Depth Azi.			Date C	Complete	d:		11, 2003	
	Collar Azimuth (Gr:	id) .00	-	-	-	-			-				
	Collar Dip:	-55.00	6.0	-54.0	360.0	-41.0		Drille	d by:		BENOIT	2	
	(0 Degrees Grid equ	uals 341 degrees True)	90.0	48.0	450.0	-41.0		Core S	Size:		NQ		
	Hole Length:	555.00	180.0	-42.0	540.0	-39.0		Materi	al left	in hol	e NX CAS	SING	
			270.0	41.0				Core I	ocation	:	Upper	Canada S	ite 1
	Date Printed:	19 Apr, 2004						Logged	l by:		FR Plo	eger	
									-		$\cap \mathcal{Q}$		
											#K/	4	
											11 410		
From	То		Geology			Sample	From	То	Len	Sul	AU	AU1	AU2
(m.)	(m.)					NO.	(m.)	(m.)	(m.)	8	OZ/T	OZ/T	ppb
	SUMMARY LOC	3											
.00	1.20 OVERBURDEN	N											
1.20	3.76 TRACHYTE 1	TUFF											

- 3.76 110.20 GREYWACKE
- 110.20 132.30 CONGLOMERATE BLONDE ALTERATION ZONE
- 132.30 145.30 CONGLOMERATE GREYWACKE
- 145.30 150.44 GREYWACKE
- 150.44 187.47 CONGLOMERATE
- 187.47 191.14 MUDSTONE
- 191.14 258.90 CONGLOMERATE
- 258.90 259.83 FAULT ZONE
- 259.83 294.88 GREYWACKE CONGLOMERATE
- 294.88 302.55 CONGLOMERATE
- 302.55 306.48 MUDSTONE
- 306.48 310.00 GREYWACKE
- 310.00 312.00 GREYWACKE TRACHYTE
- 312.00 318.70 TRACHYTE
- 318.70 327.35 DIABASE



42A01NE2063 2.28405 TECK

		Drill Hole AK 03 05 Page: 2 of 23								
From To (m.) (m.)	Geology	Sample No.			Len (m.)			AU1 OZ/T	AU2 ppb	

- 327.35 338.80 TRACHYTE TUFF
- 338.80 340.60 GREYWACKE
- 340.60 344.11 TRACHYTE TUFF
- 344.11 348.25 PORPHYRITIC SYENITE
- 348.25 354.90 PORPHYRITIC SYENITE
- 354.90 355.30 FAULT ZONE
- 355.30 365.00 PYROCLASTIC TUFF
- 365.00 446.28 PORPHYRITIC SYENITE
- 446.28 457.05 TUFF TRACHYTE
- 457.05 483.55 PORPHYRITIC SYENITE
- 483.55 524.12 TUFF TRACHYTE
- 524.12 527.47 CONGLOMERATE
- 527.47 555.00 GREYWACKE

From To (m.) (m.) Geology

## .00 1.20 OVERBURDEN

The hole was moved about 1m north from the previous set up (hole AK03-05A) which was abandonned when the bit was burned.

### 1.20 3.76 TRACHYTE TUFF

In the previous hole (5A), this unit was believed to be a welded tuff, however. in the short interval exposed here, the unit exhibits features more characteristic of a flow. The lower contact falls on a well oxidized fracture/ slip with a 2cm oxidation rind @ 70 TCA in contrast with the chilled contact of hole 5A. Within 1m of the contact, there is a pebbly/ fragmental zone with the odd jasper chip/ grain and several mafic clasts. The upper part of the unit comprises a melange of fine grained granular and medium grained porphyritic phases. The former appears to be a mix of fine grained sedimentary matrix material with rare 1-2mm clasts that grade into sections that are finely porphyritic with mafic phenos. These seem to be related to the latter medium grained phases that contain 1-3mm euhedral mafic (pyroxene?) dark green grey crystals in a fine grained light grey groundmass. The porphyritic zones appear to grade in and out of finer grained non phenocrystic phases that resemble the groundmass. The overall colour of the unit is that of the groundmass, mottled light bluish and yellowy blue indicating a moderate degree of alteration.

Veining is negligible in the trachyte but the matrix is pervasively ankeritized; many of the fractures and slips are oxidized, most of them trending @ about 35 TCA. As with the abandonned hole, the susceptibility falls within a narrow range of 0.25 to 0.32 which is low for a trachyte. Mineralization is trace.

#### 3.76 110.20 GREYWACKE

Below the oxidized slip that forms the upper contact with the trachyte, the hole transects a thick monotonous sequence of greywacke. Overall, it is mildly to moderately altered to a light olive blue grey colour, undeformed, fine grained, massive and featureless with only very rare glimpses of bedding and <0.5% scattered pebbles. There are none of the pebbly/ conglomeratic lenses that are typical of the greywacke sequence elsewhere on the property. Jasper grains are visible with the aid of a lense but very fine grained dull olive clasts, as at 7.70m where they appear to form soft sediment ball and pillow slump textures, are most common. Smaller green carbonate altered pebbles were also noted throughout the unit.

Veining is scattered through the core, amounting to 0.5-1% overall. It is almost exclusively white ankerite and quartz; the matrix is pervasively ankeritized in addition to being weakly sericitized, particularly along fractures. MS values are uniformly low within a narrow range of 0.05 to 0.17. Except for the odd grain of pyrite associated with quartz carbonate veins, sulphide mineralization is nil. Any anomalous occurences are

21872	15.20	15.60	.40	TR	.001	.000	41
21873	15.60	16.40	.80	0.5	.002	.000	62
21874	25.84	26.14	.30	TR	.000	.000	nil
53487	34.38	35.00	.62	TR	.008	.000	274
21875	35.00	35.45	.45	0.5	.443	.000	15240
53488	35.00	35.45	.45	0.5	.588	.000	20195
53489	35.45	36.36	.91	TR	.004	.000	120
21876	40.30	40.68	.38	TR	.000	.000	nil
53490	42.89	43.55	.66	TR	.007	.000	237
21877	43.55	44.00	.45	TR	.104	.000	3566
21878	44.00	45.00	1.00	TR	.002	.000	57
21879	45.00	45.43	.43	0.5	.000	.000	nil
21880	45.43	46.38	.95	TR	tr	.000	15
21881	52.25	53.05	.80	TR	.000	.000	nil
21882	55.67	56.03	.36	0.5	.000	.000	nil
21883	70.46	71.74	1.28	TR	.000	.000	nil
21884	71.74	72.45	.71	TR	.000	.000	nil
21885	79.65	80.00	.35	TR	.000	.000	nil

				Drill Hole A	)5	Page: 4 of 23				
	TO (m.)	Geology	Sample No.	From To (m.) (m.		en (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
		described separately below.	21886 21887	91.17 91 93.17 93		.43	TR TR	.001 tr	.000	22 12
		15.34 15.45 Quartz Carbonate Vein Zone Partly oxidized and partly fresh,	21888	103.80 104		.61 .70	TR	.000	.000	nil
		the interval comprises about 60% quartz carbonate veining @ 70	21889	109.40 110		.75	TR	.000	.000	nil
		TCA. Trains of pyrite pepper fractures and inclusions in the veins, amounting to 0.5% over 10cm in, and around, the vein.	21890	110.15 110	.77	.62	TR	.000	.000	nil

- 16.00 16.35 Greywacke This is a rare interval in the wacke where there is an indication of bedding which, in this case, is reflected by a series of 7-10 trains of pyrite and dark minerals, that form a shallow arc along the core axis over the length of the interval and that end abruptly at the upper contact. This may be a scour or truncated crossbedding that would infer that tops are up hole.
- 25.98 26.00 Carbonated Zone This is a dry looking 2.5cm wide white ankerite vein @ 40 TCA that may represent infilling of a minor fault structure at the same angle. Mineralization is trace.
- 35.24 35.29 Carbonated Zone The vein here comprises a laminated Ankerite Chlorite Quartz Fault @ 20 TCA with 0.5% fine pyrite and minor chalcopyrite over about 10cm in the vein and walls. A faint bluish grey sheen on a slip face may indicate weak moly/ graphite.
- 40.36 40.68 Quartz-Carbonate Vein Zone The zone comprises a series of white ankerite quartz veins @ 60 TCA that covers about 50% of the interval. Mineralization, although anomalous, does not reach 0.5%. The veining may overprint a weak fault structure since a green carbonate clast has been stretched/ smeared into the plane of the veining.
- 40.68 56.00 Greywacke (gritty) Although there were no gritty sections earlier in the hole, this section seems to grade in and out of a coarser phase of wacke in which pebbles to 3cm are noted but where most of the grains are less than 1cm in a fine grained matrix. The interval begins with a 20cm band of dull creamy olive, aphanitic mudstone with inundated contacts @ about 25 TCA. It is noteworthy that there are no pink coloured clasts apart from the odd jasper grain; most are creamy olive/ beige, green carbonate or shades of light to dark grev. Another 15cm mudstone lense cuts the wacke at 51.10m @ 45 TCA with a partly flame textured upper contact indicating tops up hole. The susceptibility rises marginally to a slightly elevated plateau of 0.15- 0.20 in the grittier zones at the start and end of the interval, dropping to 0.12 at 48m, the central fine grained wacke section. Outside of the veining, which amounts to 0.5%, concentrated mainly near the structure at 43.70m described below, the sulphide content is nil. The carbonate of the veins and permeating the matrix, is ankerite.

43.61 43.77 Quartz-Carbonate Vein Zone - The vein zone actually comprises

	Drill Ho	le AK C	3 05	P	age:	5 of 23	
Geology	From (m.)					AU1 OZ/T	AU2 ppb

two flanking Chlorite Faults © 20 TCA with an early mottled dull white to grey mottled quartz carbonate vein sandwiched between; this is cut by later ladder type veins. The zone is lightly dusted with very fine pyrite that constitutes less than 0.5% of the interval. Weak bleaching/ sericitization continues for a few centimetres down hole from the veining.

45.10 46.32 Carbonated Zone Not really a strong zone, white carbonate veinlets and stringers only make up about 10% of the interval, mainly near the start and end. Leading the zone is a 1cm thick discontinuous white ankerite vein @ 48 TCA that has a central core of quartz and pyrite. The only other features of note are two 2cm wide carbonate veins @ 55 and 50 TCA with only trace fine pyrite near the end of the interval.

TO

(m.)

From (m.)

- 52.62 52.65 Fault Zone Consisting of a small pile of broken rock chips and a smear of mud, this is a weak Crush Mud Fault @ 50? TCA. The crushing, along with a dusting of fine pyrite and 15% carbonate veining continue down hole for 15cm.
- 55.70 55.80 Quartz-Carbonate Vein Zone This is a slightly stronger combination vein and structure that trends at 45 TCA. A central chlorite slip is flanked by fractured quartz ankerite veining and 1% sulphides as fracture fillings and disseminations.
- 56.00 80.80 Greywacke A return to the massive greywacke through a transitional contact. As before, it is moderately altered to medium grey with lighter yellowy and olive overtones which reflect variations in the intensities of carbonatization and sericitization. From this point on, the texture of the wacke becomes more variable by starting to include occasional gritty sections and more abundant pebbles, perhaps 1-2%. Mineralization is generally nil apart from trace to anomalous fine pyrite associated with 3% carbonate patches and veins along minor structures. The MS values are uniformly low at 0.12-0.14 to 66.5m which is slightly gritty in places, and drop lower to a 0.07 - 0.09 range in a granular porous phase to 74.5m, only to rise to an average of 0.18 to the end of the interval. The carbonate of the veining and the matrix continues to be strongly ankeritic. A 15cm band of olive coloured mudstone cuts the wacke @ 55 TCA at 65.95m.
- 64.20 64.27 Carbonated Zone Not related to any prominant structure, this carbonate vein contains only trace sulphides and cuts the core @ 20 TCA.
- 72.05 72.15 Carbonated Zone This Carbonate Breccia Quartz Fault @ 20 TCA seems to form the locus of a general enrichment of carbonate within about 2m up, and 0.5m down hole. Overall, the ankerite veining over this 2.5m amounts to about 15% while the sulphide content, although slightly anomalous, is well below 0.5%.

		Drill Ho	ole AK-(	03-05	E	°age: €	) of 23	
Geology	Sample	From	То	Len	Sul	AU	AU1	AU2
	No.	(m.)	(m.)	(m.)	×	OZ/T	OZ/T	ppb

From To (m.) (m.)

- 79.80 79.82 Fault Zone The structure here is a tight laminated Chlorite Carbonate Fault @ 30 TCA with trace sulphides.
- 80.80 83.00 Greywacke (gritty) Through transitional upper and lower contacts, the greywacke coarsens into a dominantly gritty section that contains abundant clasts to 3cm but averaging generally <0.5cm. MS values remain in the 0.16 0.80 range; sulphides are trace.
- 83.00 110.20 Greywacke Following the gritty unit above, the host reverts to a fairly clean, homogenous, massive greywacke in which pebbles are scarce, forming <0.5% of the core, with yellowy/ olive mudstone and green carbonate clasts forming the main pebble lithologies. Overall, the wacke is moderately altered to medium bluish grey with yellowy washes that, in places, become more intensely olive yellow (sericitized) adjacent to fractures. The matrix is pervasively ankeritic as are the 2% fine carbonate veinlets and streaks that cut the host. The susceptibility ranges between 0.08 and 0.16 with an average estimated at 0.12; mineralization is nil to trace.
- 87.42 87.48 Fault Zone Unlike previous structures that occurred with carbonate veining, this fault is weak and irregular @ about 45 TCA with a 2mm seam of mud. There is no associated alteration or mineralization.
- 91.17 91.33 Fault Zone This is one of the stronger faults of the hole that is characterized by a few centimetres of gouge at the start, followed by 6cm of shearing and weak silicification, and ending with a 5cm quartz carbonate chlorite vein. The overall attitude of the FAZ is 70- 80 TCA. Sulphides, which amount to trace, occur as very fine disseminations in a moderately sericitized halo below the structure and as rare grains in the sheared and vein zones.
- 93.25 93.26 Fault Zone Another weak structure, it comprises a mud slip @ 43 TCA with minor accompanying chlorite fracturing and sericite alteration and a sprinkling of trace sulphides. Down hole at 93.72 is a 3mm carbonate pyrite vein @ 60 TCA.
- 103.80 104.50 Carbonated Zone The interval comprises approximately 75% dull white and olive grey ankerite quartz veining that is probably associated with irregular chlorite carbonate slips at low angles TCA. The walls are sericitized and sprinkled with anomalous to trace fine sulphides.
- 105.93 105.96 Quartz-Carbonate Vein Zone Hardly considered as a zone, this is a 3cm white vein @ 60 TCA that is weakly vuggy with fine pyrite crystals growing in the cavity.

				Drill Ho	le AK-03	• 05	Pa			
From (m.)	To (m.)	Geology	Sample No.	From (m.)	TO (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
110.20	132.30	CONGLOMERATE BLONDE ALTERATION ZONE	21891	110.77	111.30	. 53	TR	.000	. 000	nil
		The term BAZ may be taken out of context here but it adequately describes	21892	111.30	112.28	. 98	TR	.000	.000	nil
		the strong alteration of the conglomerate. Apart from the clasts, which are	21893	120.17	120.60	.43	ΤŔ	tr	.000	2
		dominantly various shades of creamy beige or medium to dark grey, the matrix	21894	123.77	124.49	.72	TR	.001	.000	19

21895

21896

130.96 131.84

131.84 132.37

21897 135.00 135.86

.86

TR

.002

.000

70

.88

.53

TΡ

TR

.000

.000

000

.000

nil

nil

The term ball may be taken out of contents into the the datafield ty describes the strong alteration of the conglomerate. Apart from the clasts, which are dominantly various shades of creamy beige or medium to dark grey, the matrix is pervasively altered to a creamy light tan/ brown colour. Furthermore, the boundaries of the clasts are fuzzy and seem to blend into the matrix; and, rather then rounded, they tend to be subrounded to subangular in shape. If it were not for the fact that the susceptibilities fall within a tight low range of 0.14-0.19, the host could be construed as a trachytic agglomerate zone. What also makes this unit distinctive is the fact that the alteration is sharply constrained within the contacts, ie there is no gradation above or below into the conglomerate. Both are on faults which are described separately below. The carbonate mineral in all the veining, about 2% overall, most of which trend @ 40-50 TCA, and in the pervasive alteration, is ankerite. Outside of the bounding structures and a few veins and fractures which contain trace pyrite and chalcopyrite, the mineralization is nil.

- 110.20 111.30 Fault Zone The leading contact falls on a series of structures beginning with a tight but Strong Mud Shear Fault @ 50 TCA. This is followed by 25cm of moderately crushed and altered host that leads to a 20cm wide Chlorite Breccia/ Cataclastic Fault @ 45 TCA which is characterized by angular brecciation of the conglomerate, the fragments of which are healed by dark grey carbonate/ chlorite/ quartz?. The 0.5m remaining in the interval comprises about 40% dull grey to olive toned quartz carbonate patches and veining. The sulphide content of the FAZ is trace to anomalous.
- 120.44 120.46 Carbonated Zone A zone of weak chlorite fracturing is centred on this 1.5cm quartz carbonate vein @ 40 TCA. The fractures up and down hole parallel the vein and also trend @ 55 TCA.
- 123.77 124.49 Fault Zone Not really a structure, this zone encompasses a ragged chlorite slip that meanders along TCA. It is noteworthy because it contains a small number of chalcopyrite streaks, but the interval is still trace overall.
- 132.28 132.30 Fault Zone Forming the lower contact of the blonde alteration zone, the FAZ comprises a 3cm Sericite Shear Carbonate Fault @ 40 TCA with a few specks of pyrite and several weak chlorite slips/ fractures up hole.

#### 132.30 145.30 CONGLOMERATE GREYWACKE

At the contact, there is an abrupt change to a milder degree of alteration	21898	135.86 136.38	.52	TR	.000	.000	nil
but with a corresponding increase to moderate crushing/ fracturing in the	21899	136.38 137.30	.92	TR	.000	.000	nil

			Drill Hole AK 03 05 Page:						: 8 of 23		
From (m.)	TO (m.)	5.		From (m.)	TO (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb	
		host. Although the pebble content increases to approximately 25% overall, and clasts become more variable in lithology, the subrounded nature and small general size, average 1-2cm (largest up to 4cm), the host is considered a pebbly to gritty wacke rather then conglomerate. For the first time felsic (creamy pink) pebbles are present. A fine grained, medium to dark grey mottled greywacke forms the matrix (the remaining 75%) of the unit. Many of the clasts are elongate and were probably deposited along the	21900	140.12	140.84	.72	TR	.000	.000	nil	

135.96 136.06 Fault Zone - This, the strongest structure in the interval, comprises a 4cm thick leading gouge/mud/broken core zone followed by another 6cm of chloritic crushing/fracturing, all trending @ 60 TCA. For about 1.5m down hole, the conglomerate exhibits a style of alteration similar to the BAZ zone, medium creamy beige and grey carbonatization, that becomes weaker and gradually disappears by 139m. Despite the strength of the FAZ and accompanying alteration zone down hole, mineralization remains trace.

prevailing bedding planes @ about 55 TCA. The style and type of the clasts resemble those in the BAZ unit above and probably represent a continuation

MS values are somewhat more variable, falling within a range of 0.17 and 0.28. The matrix, although not as strongly altered as above, is still ankeritic as are the 5% dull white carbonate veins and stringers that cut the host. Mineralization continues to remain nil to trace. The moderate deformation. is chlorite fracturing and the veining mentioned above, result

but less altered equivalent.

from several strong faults that are detailed below.

140.12 140.84 Carbonated Zone - Most of the interval was recovered as broken chips and pieces which resulted from chlorite slips and fractures that parallel the porcellainic ankerite veining that cuts the conglomerate @ a very low angle TCA. Sulphides are trace.

### 145.30 150.44 GREYWACKE

Both the leading and trailing contacts fall on very fine grained bands that are irregular, and, in part natural, and in part on weak chlorite carbonate slips  $\circledast$  80\ 70 TCA. The wacke is riddled with 8-10% dull white ankerite quartz veins and streaks that are associated with several faults within the interval that are broken out separately below. The greywacke itself is massive and fine grained with a tendency towards a gradual increase into a medium grain size down hole. Variable moderate sericite and ankerite alteration accompanying the faulting and veining have induced a mottled light to medium buff grey colouration in the host. Pebbles are rare but small jasper chips persist throughout. MS values continue to register in a relatively low range of 0.19- 0.28 and only trace mineralization was noted.

145.60 145.80 Fault Zone - Characterized by a 15cm thick sericitized fracture zone leading to 3cm of quartz carbonate veining and a

21901	145.55	146.60	1.05	TR	tr	.000	10
21902	146.60	147.17	.57	TR	tr	.000	7

		Drill Hole AK 03 05				Pá			
From To (m.) (m.)	Geology	Sample No.	From (m.)	TO (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
	1.5cm thick quartz chlorite carbonate fault wafer with chlorite and mud bounding slips, the fault is unusual in that the mud slip also exhibits a thin coating of molybdenite/ graphite. Mineralization continues to run trace. A second 1.5cm thick quartz carbonate chlorite wafer/ fault cuts the core at 146.36m. Both faults trend @ 65 TCA.								
150.44 187.	7 CONGLOMERATE The unit more closely resembles terrazzo or pea gravel then a Timiskaming type conglomerate. The clasts, which are fairly densely packed, range up to	21903 21904 21905	183.2	2 162.28 7 183.70 1 186.56		TR	.001 tr tr	.000 .000 .000	29 5 10

3cm diameter but average about 8- 10mm. Poor sorting, lack of felsic/ syenitic lithologies and the relative subangularity/ subrounding of many clasts attests to the immaturity of the unit. As with most of the pebbly phases in the upper parts of the hole, jasper chips are prominent but the majority of the clasts are light buff to beige coloured or various shades of grey ranging from almost white through to dark/ black. The overall colour of the fine conglomerate is determined by the fine grained greywacke matrix which is medium green grey with local buff/ yellowish grey hues where mildly altered adjacent to vein zones. In the upper 6m, the fragments are relatively small. <0.5cm, compared with the remainder of the interval.

Carbonate veinlets and fractures account for <0.5% of the host, all of it ankeritic in composition, as is the moderate pervasive carbonatization of the matrix. The sulphide content remains negligible and the magnetic

162.13 162.17 Fault Zone - The FAZ is characterized by a lcm quartz

172.10 172.30 Mudstone - Only traversing half the core, this little sliver

183.54 183.57 Fault Zone - This is a Carbonate Chlorite Crush Fault @ 60 TCA

186.36 186.48 Fault Zone - Another weak structure, this fault consists of a

carbonate chlorite vein @ 20 TCA with 0.5m of moderate crushing and dirty light beigey grey alteration. A sprinkling of very fine pyrite was noted in the vein and accompanying

of mudstone is finely laminated but contorted indicating a probable slump provenance. It is aphanitic, medium slate grey to buff coloured and exhibits sharp natural contacts with the

with weak sericitization and crushing of the walls and trace

leading moderate sericitic shear zone and trailing 3 cm crush/ cataclastic feature trending @ 45 TCA. Sulphides are trace.

susceptibility consistently low, in the 0.19- 0.32 range.

enclosing fine conglomerate.

alteration.

sulphides.

187.47 191.14 MUDSTONE

	Drill Ho	le AK-(	03 05	P	age: 10	of 23	
Sample	From	То	Len	Sul	AU	AU1	AU2

ş

OZ/T

OZ/T

dqq

(m.)

NO.

(m.)

(m.)

Geology

From To (m.) (m.)

Leading off the mudstone unit through a natural irregular sharp contact @ about 40 TCA is a medium slate grey phase in which the fine bedding laminations are highlighted by very fine whispy sericite and carbonate threads. The host is aphanitic to very fine grained and the bedding fabric trends @ 35 TCA. From 188.50-189.13m, the mudstone is interrupted by a fine conglomerate lense similar to that immediately above in the hole. The upper contact is wavey but sharp, natural @ 35 TCA, the trailing contact also sharp, but formed by a Carbonate Chlorite Fault @ 55 TCA. The conglomerate is moderately altered to a mottled light to medium grey which has masked and diffused the outlines of the some of the pebbles.

In the remaining section of the mudstone, alteration/sericitization has increased, particularly along the bedding laminae thereby lightening the colour to a medium- light grey base with bright olive yellow/ chartreuse fine foliations defining the bedding. Deformation/ offsetting by late fractures and probable minor soft sediment deformation during the depositional cycle, has skewed bedding angles from undulating gently along TCA to cutting it at low angles of about 15-20 degrees and ending at 40 TCA. The last 0.4m are a mix of the fine conglomerate and mudstone both of which have have been well fractured and altered.

The susceptibility varies through the interval, starting at 0.20 in the upper mudstone, increasing slightly to 0.25 in the conglomerate and dropping sharply to 0.12 in the lower mudstone only to rise gradually to 0.17- 0.20 near the end. In addition to the sericite alteration, the host is pervasively ankeritized and cut by 0.5% white ankerite chlorite stringers. Despite the higher degree of alteration, the sulphide content is nil to trace.

191.13 191.14 Fault Zone - Noteworthy not only because it terminates the mudstone unit, the FAZ is also the focus/ start of moderate to strong deformation- crushing and shearing- and sericite alteration that extends to 192.66m. It is characterized by a 2cm chlorite quartz carbonate wafer with a few slashes of pyrite and chalcopyrite that trends @ 70 TCA. The crushed zone that follows, also contains scattered sulphide grains, the aggregate of which are still below 0.5%.

### 191.14 258.90 CONGLOMERATE

As described with the FAZ above, the contact area is crushed and sericitized. Although the strongest deformation and alteration ends at 192.66m, it is not until 195.0m that the conglomerate is completely fresh and intact. Of all the lithologies described as conglomerate to this point in the hole, this phase truly represents the typical Timiskaming type of the Kirkland Lake camp. It is polymictic, complete with a number of reddish felsic- trachytic- porphyritic clasts as well as the diognostic jasper pebbles, unsorted with a mixed clast and matrix supported texture, grewacke forming the matrix and lenses and relatively fresh and undeformed. The overall colour, basically that of the matrix, is medium to dark green to

21907	191.47	192.65	1.18	TR	tr	.000	10
21908	192.65	193.60	.95	TR	tr	.000	14
21909	209.23	209.64	.41	TR	tr	.000	5
21910	211.60	212.60	1.00	TR	tr	.000	9
21911	212.60	213.85	1.25	TR	.000	.000	nil
21912	213.85	215.19	1.34	TR	.000	.000	nil
21913	244.93	245.81	.88	TR	.001	.000	24
21914	247.80	248.20	.40	TR	.000	.000	nil
21915	248.20	249.45	1.25	TR	.000	.000	nil
21916	249.45	249.70	.25	TR	.000	.000	nil
21917	253.90	254.62	.72	ΤŔ	.001	.000	26

			Drill Hole AK 03 05 Page: 11 of 23								
From To (m.) (m.)		.) Geology		Sample From To No. (m.) (m.)		Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb	
		blue grey; clasts are multi coloured as expected and range up to 14cm	in 21918	258.00	258.90	.90	TR	tr	.000	5	

size. Beginning around 235m, fracturing, carbonate veining and alteration begin to increase progressively towards the lower contact. The greywacke lenses also become thicker than the conglomerate horizons.

Except for a couple of lower and irregular values to 0.15 in the altered section near the start, the magnetic susceptibility to about 221m is consistently within the range of 0.27 to 0.48, averaging about 0.35. Excluding a carbonate vein at 212m that follows the core axis, veinlets and streaks- generally white to dull grey- amount to approximately 2% of the host. This veining and mild to moderate pervasive carbonatization is ankeritic in composition. Except as noted, and apart from mineralization in some pebbles, the sulphide content is nil to trace.

- 209.36 209.63 Fault Zone The width included in the fault structure encompasses a zone of chloritic fracturing/ crushing within which are contained several wavey dull grey quartz veins @ 75 TCA, a central Crush Quartz Chlorite Fault @ 53 TCA and a trailing Caarbonate Chlorite Fracture Fault @ 60 TCA. Mineralization comprises a fine dusting of pyrite that is anomalous but <0.5%.
- 211.60 212.60 Carbonated Zone The zone here is a white carbonate (ankerite) vein with dull grey quartz patches and host rock inclusions that follows the core axis and terminates against a 4cm wide dull grey carbonate quartz vein cutting the core @ 35 TCA. Spashes of chalcopyrite were noted in the vein. A second fracture along TCA with minor veining occurs down hole at 213.85 to 215.19m.
- 244.93 245.81 Fault Zone The FAZ is characterized by a series of intermittent Chlorite Crush structures @ 50- 60 TCA with early minor broken veining (quartz and carbonate) overprinted by later white ankerite veins, about 35% combined. Mineralization consists of anomalous- but <0.5%- fine pyrite and chalcopyrite.
- 247.88 248.00 Carbonated Zone Another ankerite vein here (@ 50 TCA) that is unrelated to any significant structure, it is noteworthy because it contains a fine dusting of pyrite in the vein and walls. It is followed at 249.56m by a 2.5 cm carbonate quartz vein with minor fine pyrite @ 55 TCA.
- 254.00 254.20 Carbonated Zone This is a Carbonate Crush Chlorite Fault @ 35/ 45 TCA with some dull grey quartz and additional ragged carbonate veining up and down hole. Fine anomalous sulphides occur in the vein and walls but fall well short of 0.5%.

258.90 259.83 FAULT ZONE

75% Quartz carbonate veining accompanied by strong crushing/ cataclasis @

21919 258.90 259.83 .93 TR .001 .000 21

From To	Geology	Sample	From	То	Len	Sul	AU	AU1	AU2
(m.) (m.)		No.	(m.)	(m.)	(m.)	olo B	OZ/T	OZ/T	ppb

55/ 25/ 60 TCA define the FAZ. Fractures are filled with green black chlorite and bright yellow green sericite; quartz carbonate veining is mottled from dull light grey to beige. Apart from the odd fine speck, no significant sulphides were noted. The fault forms the contact between the conglomerate and the pebbly wacke that follows.

### 259.83 294.88 GREYWACKE CONGLOMERATE

Leading the wacke horizon below the FAZ is a 34cm thick mudstone band which is finely laminated/ streaked © 50 TCA with bright chartreuse sericite. This is followed by a 1.3m zone that is well fractured/ crushed and streaked with sericite and carbonate. Beyond the deformed contact zone, the characteristics of the geywacke protolith become more clear even though the moderate to strong alteration and microfracturing have partly obliterated the original textures. Overall, it is altered to a light olive/ yellowy grey colour that appears spotted/ mottled reflecting the degrees of alteration as well as the mix of primary lithologies. These include aphanitic mudstone lenses similar to that leading the interval, very fine grained and fine grained to gritty massive greywacke units and fine to coarse pebbly horizons and scattered isolated clasts. Many of the neutral coloured pebbles have been blended into the background matrix by the alteration leaving jaspers and green carbonate as the most prominent. The pebbles become more noticeable below 271m.

The relatively strong alteration mentioned above comprises pervasive ankeritization and sericitization of the matrix through the intense microfracturing. An additional 5% or so white ankerite patches, streaks, shreds, fine veinlets and fracture fillings also cut the host at a variety of orientations. At approximately 292.0m, the carbonate alteration of veins and matrix becomes calcitic. The MS values range between 0.16 and 0.31, averaging about 0.21 or 0.22. Mineralization is constrained to the odd speck of pyrite in carbonate- quartz veinlets or in the matrix except for a zone around 270m that contains about 0.5% fine pyrite over 25cm. Sampling reflects spot checks in areas of increased veining and fracturing that may not have been broken out separately.

- 279.86 286.50 Greywacke Conglomerate The intervval represents a window of milder alteration and mild to moderate fracturing of the pebbly wacke.
- 286.50 294.88 Conglomerate Greywacke The trailing section of the interval contains a higher proportion of clasts, but also becomes progressively more altered and fractured. Fractures are chlorite carbonate filled with minor sericite prefering to overprint finer grained clasts and mudstone lenses and rip up clasts. Mineralization, which has been scarce in the hole so far, occurs more prominently as disseminated grains in the matrix as well as its normal association with fracturing and veining. Fracturing/ deformation is more of a brittle than ductile type, indicating, perhaps that the carbonatization and

21920	259.83	261.00	1.17	TR	.018	.000	612
21921	261.00	262.33	1.33	ΤR	.001	.000	39
21922	265.37	266.23	.86	TR	.000	.000	nil
21923	267.98	269.04	1.06	TR	.008	.000	263
21924	269.04	269.76	.72	TR	.001	.000	22
21925	269.76	270.14	.38	0.5	.001	.000	34
21926	274.56	275.85	1.29	ΤR	.000	.000	nil
21927	288.25	289.07	.82	TR	.000	.000	nil
21928	289.07	289.74	.67	TR	.000	.000	nil

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Drill Hole AK-03 05

				Drill Hole AK 03 05			P			
From To (m.) (m.)		Geology )		From (m.)	TO (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
		serictization induced a competancy into the rocks that allowe them to behave brittly during deformation. Sampling reflect slight increases in sulphide content, none of which attain 0.5%. As mentioned above, it is through this interval, a 292.0m, that calcite replaces ankerite as the dominan carbonate mineral.	5 3 -							
		289.07 289.74 Mudstone - Similar to the mudstones higher up in the hole this narrow aphanitic unit is well sericitized along bedding lamination planes @ 20 TCA. Contacts with the enclosing wack are sharp, natural and conformable with the bedding @ about 2 TCA.	/							
294.88	302.55	CONGLOMERATE	21929	295.38	3 296.30	. 92	TR	. 000	.000	nil

With the loss of the pebbly horizons, the hole passes into a massive unit of fine grained greywacke. Strong sericite and calcite alteration have imparted an overall grungy light greyish olive colour and strong chlorite fracturing has superimposed a black spidery/ chickentrack like texture to the host. Small jasper chips and the fine granular texture are evident with a hand lense. In addition to 0.5% white calcite veinlets, large dull grey quartz blobs/ patches, unrelated to structure and amounting to about 10% of the interval, are also overprinted by the fracturing. Despite the veining, alteration and deformation, mineralization is trace. Sampling reflects anomalous increases in fine pyrite or concentrations of quartz blobs. MS values average about 0.18.

## 302.55 306.48 MUDSTONE

At 302.55m, there is a sharp natural? contact @ 47 TCA with a very fine grained greywacke that grades into mudstone, through another sharp contact @ 35 TCA by 303.10m. From the contact to 304.30m, very fine grained greywacke bands/ beds up to 30cm thick are interbedded with thinner lenses of mudstone, the latter distinguished by the brighter olive yellow sericite alteration compared with the drab olive grey of the wacke. Both are well crushed/ fractured with dark grey/ black chlorite- guartz- carbonate filling the fractures. The magnetic susceptibility rises from 0.18 at the start to 0.34 by 304.30m. The next section to 305.07m, comprises a series of well laminated and graded mudstone beds dipping @ 40+/- TCA, a medium grey colour defining the slightly coarser bases while the finer tops are highlighted by olive yellow sericite alteration. Using the graded bedding, tops are consistently down hole. The remainder of this section is more uniformly textured, massive mudstone, also sericitized, but in situ brecciated with black chloritic fractures. Here, the MS values are slightly elevated at 0.25- 0.47. Lying immediately below this zone is a final very fine wacke bed, which, approaching the trailing contact, is interbedded with another sequence of laminated mudstones. Late calcite veining amounts to <0.5% and mineralization, generally trace but locally anomalous, occurs mainly in the chlorite fractures.

21933	303.34 304.30	.96	TR	.001	.000	21

.93

1.12

82

21930

21931

298.54 299.47

301.40 302.52

21932 302.52 303.34

TR

TR

TR

tr

tr

.000

.000

.000

.000

12

nil

14

			Drill Hole AK-03 05			3 05	Page: 14 of 23			
From	То	Geology	Sample	From	To	Len	Sul	AU	AU1	AU2
(m.)	(m.)		NO.	(m.)	(m.)	(m.)	2	OZ/T	OZ/T	ppb

304.06 304.07 Fault Zone - Not a fault but more of a 1mm Mud Slip @ 50 TCA.

#### 306.48 310.00 GREYWACKE

Through a sharp, natural? contact, there is a return to massive fine grained greywacke. Sericite alteration decreases down hole as indicated by a change in colour from medium olive grey to dark grey. The texture is granular with the ever present jasper chips helping to define the rock as a sediment in the absence of pebbles or mudstone interbeds. Calcite veining constitutes about 2% of the interval, concentrated almost exclusively in a 3cm white vein in the centre of the unit. The susceptibility is slightly elevated to 0.31 to 0.46; sulphides are trace.

### 310.00 312.00 GREYWACKE TRACHYTE

Visually, the two lithologies are almost indistinguishable from one another, both are fine grained, massive looking and dark grey in colour. With a lense, the granular texture and fine red jasper chips identify the wacke while the massive to coarsely fragmental texture and slightly brownish caste were interpreted as slivers and tongues of trachyte flows. No attempt was made to pinpoint flow/ wacke contacts, but they seem to occur at subtle changes in colour at flow margins and in areas of fragmental texture. MS values, which range between 0.25 and 0.43 are no help in distinguishing the phases. The sulphide content is nil to trace and 2-3% carbonate veins and veinlets are composed of white calcite. The matrix is also mildly calcitic.

#### 312.00 318.70 TRACHYTE

From this point down, the host is predominantly trachytic, with only minor included slivers of sediment, mainly near the start of the interval. The upper contact was taken at an undulating chilled flow contact @ about 45 TCA. The sedimentary slivers were identified by the granular texture and inclusion of small pebbles in contrast with the trachytes which exhibit typical flow features. These include: a fine grain size; flow contact features such as subtle changes in colour and chilled textures, flow and interflow fragmentals and rubbly flow contacts; and a gradual increase in magnetic susceptibility from 0.65 at the contact to 30.2 at 316.50m. Overall, the colour is dark greyish brown with local purplish tinges, indicating a mafic composition. Deformation comprises weak chlorite filled fractures and 1% fine dull white calcite veinlets while alteration consists of mild to moderate pervasive calcification. There are no structures of note in the interval which is reflected in the sulphide content of trace.

317.65 317.73 Fault Zone - This is a bleached zone surrounding a central chlorite slip @ 65 TCA with accompanying moderate fracturing. The host is altered to light grey colour with local orange patches. Several additional orange patches about 15cm down

			Drill Hole AK-03-05 Pag						je: 15 OI 23		
From (m.)	To (m.)	Geology	Sample No.					AU OZ/T		AU2 ppb	

hole appear to represent either fragments or sedimentary? inclusions that have been incorporated into the margin of a trachyte flow. There is no associated mineralization.

# 318.70 327.35 DIABASE

The leading contact of the northeast trending diabase dike falls on a Mud Gouge Fault @ 90 TCA that was recovered as a pile of fine chips. There is a gradual increase in grain size from fine to medium grained to about 321m where it continues to coarsen to 324m at which point it again fines to a 1m chilled lower contact. The overall colour is dark brownish grey in the coarse central part of the dike and blue grey in the finer phases. Mild alteration has masked the primary mineralogy of the diabase, but from the medium and coarse grained phases, it appears that equant and tabular mafic grains (altered hornblende and pyroxene?) occur in a finer grained felted groundmass of (altered equivalents) feldspar, hornblende?, pyroxene? with some calcite and epidote. The susceptibility is variable, with MS values ranging between 25.0 and 49.0 with a mean of about 35.

321.29 321.50 Broken Blocky Core . The core here was recovered as small pieces and chips centred on a Gouge Mud Carbonate Fault @ 70 TCA.

### 327.35 338.80 TRACHYTE TUFF

The leading contact of the trachyte falls on the chilled margin of the diabase @ 78 TCA. No attempt was made to isolate individual flow units from interlensed tuffs/ sediments. Flows tend to be massive textured and fine to very fine grained with rubbly contacts. Intermixed with these are interflow breccias/ agglomerates and finer tuffaceous lenses, the latter of which display more granular type textures, and, may in fact, be sediments. Two such zones, at 329.36- 331.48m and 336.30- 336.63m are distinguishable by the colour, a dirty brownish grey contrasted with a greyish orange to red for the trachyte, and by lower susceptibilities, which range from 0.50 to 2.40 in the upper sediment and 5.93 in the lower. Normal MS values in the trachyte are much higher at 6.5 to 36.0 although the hematized?/ orange altered fragmental looking section adjacent to the dike is lower, around 1.00-2.00, as is a bleached zone surrounding a vein at 333.30m, at 0.70 to 2.00. White carbonate shreds and veinlets, aggregating approximately 1% of the core, are calcitic. Mineralization consists of nests and disseminations of pyrite, and to a lesser extent, chlcopyrite which, even when combined, are trace.

329.36 329.42 Fault Zone - A leading mud slip @ 60 TCA is followed by 6cm of carbonate quartz breccia in this FAZ.

333.00 333.44 Quartz Vein Zone - About 35% dull to dark grey mottled quartz veining cuts the zone @ 75 TCA. Walls are altered to medium to dark brown grey, the alteration extending another 35 cm down

21934	329.26	329.67	.41	TR	tr	.000	3
21935	332.20	333.00	.80	TR	.003	.000	118
21936	333.00	333.34	.34	0.5	.024	.000	826
21937	333.34	334.00	.66	TR	.001	.000	38
21938	334.00	334.70	.70	TR	.001	.000	33
21939	334.70	335.40	.70	TR	.001	.000	17
21940	337.40	338.60	1.20	TR	.003	.000	113
21941	338.60	339.50	.90	TR	.001	.000	34

			Driil Hole AK-03-05		3 - 05	P			
From (m.)	Geology	Sample No.	From (m.)				AU OZ/T	AU1 OZ/T	AU2 ppb

hole. Associated with the veining and alteration are 0.5% fine pyrite and chalcopyrite as disseminations and fracture fiilings. This vein zone has the 'feel' of an ore type structure.

334.46 334.52 Carbonated Zone - This interval comprises a pastel pink calcite vein @ 65 TCA with minor chloritic shreds and a few small blebs of chalcopyrite and pyrite. There is no significant alteration associated with the vein.

#### 338.80 340.60 GREYWACKE

The leading contact falls on an irregular chlorite slip @ 35 TCA that coincides with an overall change of colour from a dark pink grey to a greyish olive. Although strongly crushed, the wacke exhibits a gritty granular texture even through the overprinted mesh of fine chloritic fractures. Several pinkish grains have retained their original colour despite the sericitization and calcification of the matrix. MS values fall within a range of 0.61 to 2.53 while mineralization is trace. The wacke ends on a lcm pink calcite vein @ 65 TCA.

### 340.60 344.11 TRACHYTE TUFF

A return to trachytic flows is marked by a change in colour to grungy greyish red to dark grey to brownish grey. As above, flow, interflow, fragmental and tuffaceous phases are mixed and difficult to subdivide because of the deformation and alteration. Pink calcite veinlets constitute 2% of the interval and again, sulphides are trace. The MS values show a gradual rise from 3.99 at the start to 12.6 at 343.10m and drop to 0.72 at the end.

344.02 344.05 Fault Zone - This feature is a Crush Chlorite Fault @ 45/ 60 TCA with no significant associated mineralization or alteration.

#### 344.11 348.25 PORPHYRITIC SYENITE

With the intense crushing and similar susceptibilities of the tuff and syenite, it is difficult to pinpoint the exact contact but it appears to fall on an intermittent light pink band of altered/ cooked tuff? @ about 75 degrees to the core axis. To complicate matters, the the finer grain size and lack of distinctive phenocrysts within the contact phase of the syenite porphyry dike, strongly resembles parts of the trachyte. Overall, the unit is fine grained with local medium grained sections, massive, and dirty medium pinkish grey coloured. With the aid of a lense, the porphyritic texture, comprising fine mm size dull grey subhedral feldspar grains, is visible through the moderate microfracturing. The phenos are nested in a fine grained, medium pink grey groundmass overprinted by a network of fine

21942	346.56	347.66	1.10	TR	.001	.000	50
21943	347.66	348.78	1.12	TR	.001	.000	42

D-111 - 14 03 05

D---- 14 -5 03

				Drill H	ole AK 0	e AK 03-05 Page: 17 of 23						
From (m.)	To (m.)	Geology	Sample No.	From (m.)	TO (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb		
		chloritic (black) fractures and chlorite pseudomorphs after hornblende?. A few scattered mafic inclusions, which are also characteristic/ diagnostic of the syenite porphyries of the Kirkland Lake camp are also visible. MS values maintain a level of about 1.00 for most of the interval but rise to 6.8 and 10.0 over the last metre. Mineralization is trace and calcite remains the dominant carbonate mineral in the matrix and as 0.5% fine white and dull grey veinlets.										
348.25	354.90	PORPHYRITIC SYENITE										
		A colour and textural change occurs here along a fairly sharp contact @ 60 TCA, however, the host appears to be another phase of syenite porphyry. The colour becomes greyish brick red but the faint porphyritic texture and mafic inclusions described in the previous interval, persist. The trailing contact consists of a very strong break which may have contributed to the alteration/ hematization? of the syenite. The last metre becomes progressively more crushed/microfractured/chloritic approaching the fault although much of the unit itself is very finely mirofractured throughout. Four percent pink calcite veins to 3Cm, and fine veinlets cut the syenite to 1.70, rise to 3.30 and then fall gradually to 0.37 at the end. There is no anomalous mineralization.	21944	354.01	0 354.90	.90	TR	.001	. 000	41		
354.90	355.30	FAULT ZONE	01045	254 24						60		
		The strength of the structure dictated that it be broken out separately. As mentioned above, the porphyritic unit became more crushed near the fault, the fractures healed with chlorite, while the FAZ itself is a strong late feature characterized by strong shearing accompanied by mud and gouge. The leading 5cm consist of a plug of mud and gouge, followed by 15cm of fissile/ porous shearing @ 45/ 55 TCA and another 12cm of strong crushing with mud slips, and, a final 4cm quartz carbonate vein with bounding mud slips @ 60 TCA. The structure itself shows no evidence of alteration or mineralization.	21945	354.90	0 355.35	.45	TR	.002	.000	69		
355.30	365.00	PYROCLASTIC TUFF										
			21946		5 356.29	.94	TR	.002	.000	51		
		In places, the host appears to be a massive unit that has been tectonically	21947		9 357.12	.83	TR	.006	.000	201		
		fragmented, in others, the fine breccia seems to be a primary feature. The leading 0.8m are well fractured, half dark grey/ chloritic, the rest with lime coloured sericitic streaks, reminiscent of a sedimentary host. Mineralization here adjacent to the FAZ ranges up to 0.5%; MS values are 0.21- 0.31. Below, to a chloritic foliated tuff? at 361.85m, the texture is definitely fragmental. The leading metre exhibits a terrazzo like texture where dull pink to orange fragments to 1cm are nested in a grungy dark pink	21948	364.90	365.58	.68	TR	.001	.000	19		

grey matrix. Further down hole, the matrix becomes more massive looking with a cleaner pink grey colour. The fragments, more diffuse and generally bright pink and orange coloured, look more like altered phenocrysts or selectively altered in- situ breccia fragments. Below the mafic tuff? lense, matrix and

From	То
(m.)	(m.)

Geology

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Sample	From	То	Len	Sul	AU	AU1	AU2
No.							

fragments seem to blend together and are most easily distinguished with a lense. It appears that there is a fine network of microfracturing and alteration that has partly obscurred the original lithology, causing the confusing textures and thus the different possible interpretation.

The susceptibility starts at 0.89 in the terrazzo type fragmental and rises gradually to 22.6 by 361m, falling slowly again to 14.7 by the end of the interval. There is almost no veining but the matrix is moderately calcitic. As mentioned above, the leading section contains about 0.5%.

Pyrite while the remainder of the interval has only scattered clots and grains, trace overall, mainly confined to the fractures. The trailing contact @ 80 TCA, occurs on a chlorite slip that abruptly terminates the pyroclastic unit.

#### 365.00 446.28 PORPHYRITIC SYENITE

A window of weakly altered host porphyry over the first 20cm offers a rare glimpse of the true protolith prior to the structural and alteration overprints that obscure the character of the remainder of the interval. Perhaps it was preserved because it was the contact phase with an aphanitic dark grey green groundmass that may have been more resistant to deformation. Nested in the groundmass are a mix of waxy light green and dull grey tabular, euhedraol to subhedral crystals, probably feldspar, up to 5mm in length and dark waxy green mafic phenos. In total, phenocrysts constitute approximately 40% of the host. Also evident are fine cream coloured sericite? grains. The feldspars, some of which appear zoned, are altered to light coloured secondary minerals and calcite.

Although altered and deformed, these primary features are evident in windows throughout the unit. The groundmass remains aphanitic to fine grained and is generally coloured dark to medium brown to orange grey. The feldspar phenocrysts appear as light green/ grey, pale to medium orange/pink crystals or blend in with the colour of the groundmass depending on the intensity of the deformation and alteration unlike the mafic phenos/ grains, which are dark green black fairly consistently throughout. Medium grey brown aphanitic patches/ sweats? to 7cm wide were also noted. Except for the structures described separately below, the unit contains about 0.5% pale pink carbonate veinlets and threads. The susceptibility of the fresh piece at the start is 0.85 whereas the remainder of the interval averages about 30 within a range of 17 to 39. This does not include areas of bleaching around structures where the MS values drop below 2.00 and where ankerite replaces calcite over a few metres, particularly between 397 and 405m. Pyrite was observed as scattered grains, trace overall, and rare dime sized, nodular like clots (375.60/ 375.90) that form within patches of chlorite. Structure related increases in mineralization are treated separately below.

365.25 365.40 Quartz Vein Zone - Immediately following the contact zone is a mottled pinkish grey quartz vein @ 30 TCA that occurs with chloritic fracturing and minor sericite alteration. Anomalous sulphides were also noted.

21949	370.45	371.21	.76	TR	tr	.000	9
21950	386.70	387.17	.47	TR	.001	.000	39
21951	394.60	395.80	1.20	TR	.001	.000	36
21952	395.80	397.10	1.30	TR	.000	.000	nil
21953	397.10	397.75	.65	0.5	.012	.000	413
21954	397.75	398.50	.75	TR	.014	.000	497
21955	398.50	399.60	1.10	TR	.006	.000	211
21956	399.60	400.57	.97	TR	.043	.000	1493
21957	400.57	401.70	1.13	TR	.005	.000	158
21958	401.70	402.77	1.07	TR	.004	.000	135
21959	402.77	403.79	1.02	TR	.008	.000	282
21960	403.79	404.70	.91	TR	.002	.000	63
21961	404.70	405.57	.87	TR	.005	.000	171
21962	405.57	406.17	.60	TR	.001	.000	29
21963	408.16	409.02	.86	TR	tr	.000	10
21964	417.68	418.38	.70	TR	.009	.000	300
21965	422.45	423.40	.95	TR	tr	.000	3
21966	423.40	424.46	1.06	TR	.000	.000	nil

		Drill Ho	ole AK O	3 05	Р	age: 19	of 23		
Geology	Sample	From	To	Len	Sul	AU	AU1	AU2	
	NO.	(m.)	(m.)	(m.)	옹	OZ/T	OZ/T	dqq	

387.82 387.89 Quartz-Carbonate Vein Zone - This is an irregular zone of medium grey quartz and pink calcite veining @ 65 TCA with chloritic fractures and 0.5% pyrite and chalcopyrite.

From

(m.)

TO

(m.)

- 397.10 397.75 Fault Zone The main structure, a Strong Bleach Quartz Carbonate Fault @ 60+/- TCA occurs over 27cm at the start of the interval. It comprises a leading 0.5cm carbonate chlorite slip followed by 9cm of shearing/ foliation with speckled quartz carbonate veining, a 10cm quartz ankerite vein, 6cm fractured host, a 1cm laminated guartz chlorite vein, and finally 35cm of bleaching with scattered chlorite slips/ fractures. The entire interval is bleached to an olive lime green colour and is ankeritic. Alteration occurs sporatically between 394.60m and 405.57m, generally associated with weaker fracture zones related to the main FAZ. Almost the entire host within this broader zone is moderately fractured and altered to a light to medium grey pink or orange colour. In addition to the main fault zone, a section between 399.5m and 405.50m is weakly ankeritic, both in the veining and matrix, with some intermixed calcitic veinlets. Mineralization averages about 0.5% in the FAZ and ranges up to 0.5% over a few decimetres elsewhere within the alteration envelope. Lower MS values, which reflect the alteration of the overall interval through the conversion of magnetite to pyrite and hematite, are lowest, at 0.40, in the bleached FAZ, and range between 1.31 and 21.5 elsewhere.
- 405.23 405.24 Carbonated Zone A 1cm thick pink carbonate vein with bounding chlorite slips @ 78 TCA followed by intense crushing for 30cm and another 50cm of moderate fracturing to 406.10m, ends the deformation corridor.
- 406.10 446.28 Porphyritic Syenite Mafic Syenite Beyond the influence of the FAZ, the syenite porphyry again darkens to an overall mottled dark brownish grey colour. The porphyritic texture, as described prior to the fault, persists but the impression is that the host has become more mafic looking. In fact, in places the appearance is that of augite sympite with lighter coloured augite pseudomorphs in a darker matrix. However, with the aid of a lense, remnants of the waxy green and lighter zoned feldspar crystals can be discerned indicating that the the host has not changed, but perhaps there is a gradation in and out of more mafic phases. The black mineral grains (amphiboles altered to chlorite?) that were originally tabular, are now, curiously, round/ spherical in places; their percentage also varies. As with the large blebs described previously, pyrite continues to be associated with chlorite fractures and spots as well as occuring in mildly altered sections within crushed zones and adjacent to chlorite slips as at 418.00m (a 1cm guartz pyrite carbonate vein@ 20 TCA), at

				Drill Ho	ole AK (	3 05	I	Page: 20 of 23				
From (m.)	ТО (m.)	Geology	Sample No.		То (m.)		Sul %	<b>NU</b> OZ/T	AU1 OZ/T	AU2 ppb		
		422.76m (2mm carbonate chlorite slips @ 80 TCA), from 423.80-										

423.90 (series of chlorite slips @ 30 TCA), flow 423.80 423.90 (series of chlorite slips @ 75 TCA), and 431.08m (a chlorite carbonate shear @ 80 TCA). Otherwise, the sulphide content is trace. The porphyry is cut by 1% late pink and dull grey calcite veinlets; the matrix is slightly calcitic. MS values are highly irregular, bouncing between 20 and 40 with progressively lower values, to around 3.00, in the altered and fractured zones listed above.

#### 446.28 457.05 TUFF TRACHYTE

The texture and grain size remains constant ie, no chilled margin, to the lower contact of the syenite porphyry. It appears as though the tuff has been deposited on top of the porphyry and incorporated some porphyry clasts into the leading few centimetres. This scenerio implies that the porphyry was subaerial, either through erosion or as a thick extrusive, and that the tuff was unconformably deposited on top, ie tops down hole.

Overall medium greenish grey and relatively fresh over the first half of the interval and becoming medium grey brown altered lower down, the tuff is fine grained and granular textured with local slightly coarser lenses exhibiting crude bedding contacts @ high angles (75- 90 TCA). Some of the grittier beds are almost entirely composed of subangular fragments of mafic to intermediate composition with only rare pink/ felsic grains. Subtle changes in colour start to occur between 449.70 and 451.43m, a zone with three pink calcite chlorite vein/ fracture zones @ 55/ 75/ 85 TCA. Below this, the tuff is mildly fractured and altered to the lower faulted contact. The 0.5% carbonate veining over the interval consists of pink calcite with minor chlorite and quartz and trace sulphides. MS values are totally erratic, ranging between 1.40 and 18.5.

#### 457.05 483.55 PORPHYRITIC SYENITE

Typical of the Timiskaming Kirkland Lake type syenite porphyries, this unit starts on a leading 25cm Quartz Alteration Crush Fault @ 70 TCA. It is characterized by a 12 cm wide dull grey crushed quartz vein with 8% grains and streaks of pyrite, followed by a 14cm section of crushed brick red altered porphyry with 0.5% pyrite and ending with a porous 2cm plug of foliated host with 2% fine dusty pyrite. The porphyry is massive, fine grained with 2mm sized dull white to pink feldspar phenos in a fine grained, medium pink to brick orange coloured groundmass and contains 1-2% scattered mafic inclusions to 9 cm but averaging less than 2cm.

To 468.20m, the syenite is cut by 1% fine pink and dull white carbonate (calcite) veinlets with the exception of a 0.5m interval from 462.60 -463.00m which is ankeritic. Apart from the mineralization associated with the FAZ at the start, the sulphide content is trace to 463.0m. From here to 472.50m, the veining and matrix are moderately ankeritic. The host becomes brick orange altered as microfracturing and the sulphide content both

21967	449.62	450.40	.78	TR	tr	.000	2
21968	450.40	451.50	1.10	TR	.000	.000	nil
21969	456.00	457.00	1.00	TR	.001	.000	39
21970	457.00	457.45	.45	TR	.007	.000	219

21971	457.45	458.50	1.05	0.5	.010	.000	329
53491	458.50	459.25	.75	TR	.000	.000	nil
53492	459.25	460.27	1.02	TR	.002	.000	61
21972	468.64	469.88	1.24	TR	.000	.000	nil
21973	469.88	471.00	1.12	0.5	.006	.000	211
21974	471.00	472.02	1.02	TR	.013	.000	458
21975	472.02	472.70	.68	TR	.013	.000	447
21976	472.70	473.78	1.08	0.5	.044	.000	1513
21977	473.78	474.93	1.15	TR	.016	.000	540
53493	474.93	475.70	.77	TR	.002	.000	77
53494	475.70	477.00	1.30	TR	.002	.000	70
53495	477.00	478.04	1.04	TR	.021	.000	723
21978	478.04	478.80	.76	TR	.007	.000	247
53496	478.80	480.00	1.20	TR	.004	.000	141
53497	480.00	481.30	1.30	TR	.001	.000	38
21979	481.30	482.20	,90	0.5	.004	.000	141
21980	482.20	483.42	1.22	0.5	.002	.000	77

										Drill HC	le AK+03	5.05	P	age: ZI	01 23		
From (m.)	To (m.)	Geology				Sample No.	From (m.)	T0 (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb				
		increase. alteration	The and th	susceptibility ne increases in s		-		-	21981	483.42	484.05	.63	3	.028	.000	972	

where disseminated sulphides increase to 0.5% - spiking briefly to 7.51 and dropping to 0.12 coincident with another increase in sulphides of 1% at 472.70m. Progressing down the hole, the carbonate becomes calcitic from 472.40 to 473.20m and again from 482.80m where certain veinlets and the matrix. particularly in the tuff, are pervasively calcitic. The intervening zone is moderately ankeritic as are about 0.5% white carbonate gashes and fractures that overlap the lower calcitic zone. The theme of higher magnetic susceptibilities coincident with fresher host, lower values with more altered and mineralized host, continues down hole. MS values in a mildly altered section between 475.50- 477.70m and at 480.00m rise to 16.0 and 10.0, respectively, while the flanking zones drop to below 1.00. The colour of the porphyry in the weak altered sections darkens slightly to a greyish pink whereas the more strongly altered and microfractured intervals is brick red or orange. Samples were taken in the better mineralized zones. Although well microfractured in places, there is no significant structure cutting the

core. The lower contact with the tuff is natural, intrusive, sharp @ 40 TCA.

values are below 1.00, but rise to 3- 4.00 over the next 2.5m, gradually increasing to 19.2 by 464m, a section that is the least altered. From this point, the values begin to drop and undulate slightly to around 8.0 at the start of the ankerite, dropping further to below 1.00 at 470.00 to 471.90m.

#### 483.55 524.12 TUFF TRACHYTE

The contact with the trachyte tuff is sharp and natural as indicated above. Overall medium to dark brownish grey in colour, the tuff is massive, fine to very grained with very minor gritty zones, and mildly to moderately altered. Alteration appears to be related to slight increases in white ankerite veining (0.5% overall) and accompanying fracturing as at 483.70, 485.40, 486.25, 487.90 and 492.00m. It is manifested as changes in colour to light creamy greyish brown and medium greyish brick red. Apart from the minor gritty lenses at 485.30 and 486.40m, the tuff is massive and featureless/ homogenous with no obvious bedding. Below 492.5m, the tuff is relatively fresh and medium to dark slate grey coloured.

The matrix and some veins in the tuff are calcitic, however, as mentioned above, 0.5% white carbonate gashes and fractures associated with increases in alteration are ankeritic. By 490.5m all veining is calcitic and the matrix is moderately pervasively calcified. As with the syenite porphyry, these increases are accompanied by a corresponding increase in sulphide content and a drop in the susceptibility. The MS value at the contact is 0.58 with 3% pyrite. It then increases to 24.7 at 485.0m and drops to less than 1.00 between 486.00 and 488.60m where the sulphide content soars to 15% at one place. Further down hole, the MS values oscillate between 0.53 and 21.4, generally depending on the degree of alteration until about 495m at which point they stabalize in an upper range of 17-31.

21982	484.05	485.13	1.08	TR	.005	.000	159
21983	485.13	486.00	.87	0.5	.009	.000	307
21984	486.00	486.75	.75	12	.057	.000	1959
21985	486.75	487.35	.60	10	.032	.000	1094
21986	487.35	488.19	.84	0.5	.035	.000	1186
21987	488.19	489.00	.81	0.5	.064	.000	2184
21988	489.00	490.15	1.15	TR	.015	.000	506
53498	490.15	490.94	.79	TR	.030	.000	1024
53499	490.94	491.70	.76	TR	.011	.000	374
21989	491.70	492.36	.66	0.5	.017	.000	573
53500	492.36	493.24	.88	TR	.020	.000	674
33851	493.24	494.00	.76	TR	.000	.000	nil
33852	500.30	501.20	.90	TR	.007	.000	248
33853	501.20	502.13	.93	TR	.013	.000	434
21990	502.13	503.09	.96	0.5	.027	.000	928
33854	503.09	504.00	.91	TR	.001	.000	34
33855	504.00	505.00	1.00	TR	tr	.000	12
21991	521.00	522.00	1.00	TR	.001	.000	29
21992	522.00	523.14	1.14	TR	.001	.000	17
21993	523.14	524.12	.98	TR	.001	.000	19

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From	То	Geology	Sample	From	ТО	Len	Sul	UA	AU1	AU2
(m.)	(m.)								OZ/T	

- 482.70 483.00 Lost core At the 383m block, there is a small pile of finely ground core. In measuring from the previous block, it was found that 0.30m was missing/ ground out.
- 493.00 498.50 Broken Blocky Core A series of moderately strong chlorite slips cut the core axis at low angles (<20 degrees), some more irregular fractures, including a drusey fracture filled with carrot orange calcite at 495.85m, track along TCA. All of these combined to cause the broken core.
- 502.13 503.09 Carbonated Zone This is a zone of 20% dirty grey carbonatization around fractures with 0.5% disseminated pyrite. The tuff is moderately hematized to a mottled grungy greyish orange and MS values drop to 2.00 over the interval. Calcite is the dominant carbonate mineral.
- 503.90 511.80 Tuff A continuation of the typical tuffaceous corridor described above, it is unusual because there are several well defined bedding features displayed at 503.30m (@ 80 TCA) and 511.37 (wavey @ 65) TCA. Overall, it is relatively fresh, dark brown grey coloured with a susceptibility between 18 and 29 and averaging about 24. Minor sulphides (<0.5%) occur over a width of 8cm near a Chlorite Slip @ 75 TCA at 511.12m.
- 511.80 515.80 Tuff Although there is no overall change in texture or degree of alteration, the susceptibility jumps to a plateau of about 44. The only tangible change is a reddish hue that overprints the brown grey colour of the tuff.
- 515.80 524.12 Tuff Forming the trailing element of the trachyte tuff sequence, the MS values gradually decrease to 1.24 at the contact with the conglomerate. The decrease reflects an elevation of pink calcite content to 7% overall and an increase in microfracturing and accompanying alteration which changes the colour to a mottled light creamy beige and grey. The sulphide content rises marginally to become anomalous near the end but never reaches 0.5%. The contact itself falls on a weak chlorite slip @ 45 TCA.

#### 524.12 527.47 CONGLOMERATE

Through the chlorite slip that forms the contact, the hole plunges directly into a narrow corridor of typical Timiskaming conglomerate. It is polymictic with a wacke matrix and lenses, moderately fractured but only mildly altered (hematitized?) which has imparted a purplish hue to the core. Fractures, weakly sericitic and carbonate filled are locally transformed into weak shear structures @ about 75 TCA. Several minor Chlorite carbonate Faults at 426.38 and 426.90m cut the host @ 60/ 50 TCA. All the veining and fracture fillings in the conglomerate are calcitic. The susceptibility starts at 24.5 but guickly drops to a relatively stable platform of around 6.

21994	524.12	525.00	.88	TR	.001	.000	51
21995	525.00	526.20	1.20	TR	tr	.000	10
21996	526.20	527.43	1.23	TR	.001	.000	46
21997	527.43	528.46	1.03	TR	.010	.000	353

Drill Hole AK 03-05

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				Drill Ho	ole AK-C	)3-05	F	age: 23	of 23	
From (m.)	To (m.)	Geology	Sample No.	From (m.)	ТО (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
		Mineralization is trace to anomalous.								

.000

.002

TR

TR

.71

.56

33856 528.46 529.17

21998 538.00 538.56

.000

.000

31

69

The leading contact of the greywacke falls on a Shear Fault @ 60 TCA with a central chlorite slip and flanking carbonate veinlet above and sericitic shear below. Weak yellowy sericite alteration extends for 10cm into the wacke before the host becomes relatively fresh and medium blue to green grey coloured. Overall, the wacke is fine grained, massive/ unbedded with scattered isolated clasts and rare pebbly lenses, including the diagnostic red jasper grains. Initially, the MS values start low, around 0.50, and rise gradually to a high of 23.1 at 535.20m after which they begin to oscillate between 6 and 33 with the lower values bordering a fault at 538.20m, described below, and the highest adjacent to a weakly hematized/ brownish coloured zone at 552.65m. Fine dull grey/ pink calcite veining ranges up to 0.5%; the matrix is also weakly calcified. Mineralization is negligible except for a trace amount of fine pyrite associated with the fault.

527.47 555.00 GREYWACKE

538.20 538.27 Fault Zone - Characterized by up to 3cm fracture/ crushed quartz carbonate veining with a leading mud slip @ 80 TCA, followed by another couple of cms of sericitic shearing @ 60 TCA, the FAZ also sports a minor pile of ground core. As mentioned above, the sulphide content of the fault and walls is trace.

555.00 555.01 End of hole - The hole ends with fresh pebbly wacke.

QUEENSTON MINING INC

					QUE	EENSTON N	MINING INC									
	Drill Ho	le:	AK 03-06										-		6	
	Property		AMALGAMATED KIRKLAND		DIAMO	OND DRILI	L HOLE RECORD						P	age: 1	of J4	
	Northing		9563.00													
	Easting:		7400.00													
	Elevatio		332.00	*** Di	p Test	ts ***	*** Dip Tes	ts ***			Date S	started:		April	15, 2003	
	-			Depth		Dip	Depth Azi.	Dip			Date C	Complete	d:		18, 2003	
	Collar A	zimuth (Grid	.00			-	-	-				-		-		
	Collar D	ip:	-62.00	5.0		62.0	180.0	-60.0			Drille			H & S		
			ls 341 degrees True)	90.0		-60.0	272.0	58.0			Core S			NQ		
	Hole Len	gth:	335.00												SING- pull	
	Date Pri	nted:	19 Apr, 2004								Core I Logged	ocation by:	: 2	Upper FR Plo	Canada Sí Deger	ite 1
From	То			Geology				s	ample	From	То	Len	Sul	AU	AU1	AU2
(m.)	(m.)			21					NO.	(m.)	(m.)	(m.)	0/0	OZ/T	OZ/T	ppb
- 00		SUMMARY LOG														
.00	1.35	OVERBORDEN														
1.35	206.00	SYENITE														
206.00	217.71	CONTACT ZON	IE													
217.71	220.95	TUFF SYENIT	E													
220.95	223.79	SYENITE TUF	F													
223.79	233.28	ALTERED SYE	NITE													
233.28	244.56	BASALT														
244.56	249.00	ALTERED SYE	NITE													
249.00	258.70	TUFF ANDESI	ТЕ													

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258.70 262.24 LAPILLI TUFF

- 262.24 266.30 GREEN CARBONATE ZONE CARBONATED ZONE
- 266.30 266.70 LARDER LAKE BREAK
- 266.70 278.06 TUFF TRACHYTE TIMISKAMING GROUP
- 278.06 279.94 MUDSTONE
- 279.94 296.75 TUFF ARKOSE
- 296.75 323.63 TUFF GREYWACKE
- 323.63 335.00 MUDSTONE



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From To (m.) (m.)

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Sample	From	То	Len	Sul	AU	AU1	AU2
NO.	(m.)	(m.)	(m.)	왕	OZ/T	oz/T	ppb

#### .00 1.35 OVERBURDEN

Overburden is shallow and comprises humous and sand.

#### 1.35 206.00 SYENITE

The hole is collared in the very coarse grained, almost pegmatitic, phase of the Murdock Creek syenite stock. With the exception of minor variations caused by slight changes in alteration adjacent to structures, veining and and pegamatitic zones, the syenite is massive, homogenous, very coarse grained and overall speckled medium pink grey in colour. The speckled texture is imparted by the mineralogy which comprises 40% light pink to pinkish grey k- feldspar laths to 1cm in a +/- 50% medium grained groundmass of medium to dark grey green altered amphibole laths and interstitial chlorite (pseudomorphic? after amphiboles), and 10%+/- black biotite and magnetite. Locally, there is an alignment of the feldspars indicating possible internal flow textures within the intrusive.

Throughout the upper part of the hole, there are ultra coarse grained, pegmatitic zones, confined mainly to a corridor between 25.35 and 37.50m. These zones, which are composed of masses of light greyish orange coarse k-feldspar crystals to 1.5cm, some zoned and twinned, and dull grey quartz patches, cut the host at various angles, including along the core axis. These pegmatitic zones are unmineralized, however, a few tiny specks of chalcopyrite were observed on a fracture plane of a feldspar crystal at 31.87m. In addition, a series of mafic dikes, described below, intrude the syenite higher up in the hole.

The magnetic susceptibility varies throughout. At the top of the hole, it gradually decreases from 38.1 to 14.2 at 11.00m and then oscillates between lows of 6.60 and highs of 30.1 to about 40.00m with an isolated spike of 48.8 at 28.5m. Below, to about 57.0m, the MS values become elevated to a mean of approximately 36, and beyond, they attain an even higher plateau of 45 within a range of 32.7 and 57.2. These variations probably represent changes in the primary magnetite content of the host intrusive. The pegmatitic horizons are more stable in a low range of 1.48 to 5.75 with slightly elevated values where the zones parallel TCA. Apart from thin seams of dull grey calcite associated with weak chlorite slips cutting the host, there is no veining; the groundmass is marginally calcitic. Mineralization is nil. As expected, there are oxidized fractures, a function of surface weathering, near the top of the hole.

7.57 8.39 Diabase - Forming two dikelets separated by 15cm of syenite, the diabase is fine grained and medium brownish grey coloured. Contacts are sharp, intrusive @ 63/ 66 TCA with internal contacts serated @ 90/ 45. The dike appears to have weakly hematitized (orange altered) the syenite near the contact. Because of the setting, the dikes were interpreted as diabase, however, they may represent other types of mafic intrusive. Veining and mineralization are nil, and, the susceptibility, moderate at 7.78.

21999	30.91	32.00	1.09	TR	tr	.000	8
22000	64.05	64.75	.70	TR	.001	.000	45
22001	68.63	69.20	.57	TR	.003	.000	113
22002	109.24	109.55	.31	TR	.000	.000	nil
22003	165.39	166.35	.96	TR	tr	.000	5
22004	188.61	189.03	.42	ΤŔ	.001	.000	17

	Drill Hole AK-03-06			F	age: 3	of 14	
Sample	From	То	Len	Sul	AU	AU1	AU2
NO.	(m.)	(m.)	(m.)	2	OZ/T	OZ/T	daa

Geology

From To (m.)

- 15.16 15.95 Diabase Similar to the dike above, this diabase also cuts the host with sharp natural contacts @ 55 TCA. It is medium grey, fine grained, massive and has also weakly hematitized the syenite. MS values range between 3.14 and 6.28. One irregular chloritic fracture contains a tiny train of chalcopyrite, otherwise the sulphide content is nil.
- 64.05 64.54 Fault Zone The overall appearance of this section is that of a partly digested mafic inclusion? that has been sheared @ 40 TCA, hence the designation as a FAZ. The inclusion is fine grained and medium grey blue with fractures/ microfractures in the lower half of the interval also the same colour, possibly due to a blue chlorite. Mineralization is trace as is calcite in the matrix. The susceptibility drops to 15.5/ 25.8, well below that of the surrounding syenite at 38.4/ 43.5.
- 68.63 69.10 Fault Zone Another bluish grey fractured/ crushed zone, it ends on a Mud Chlorite Carbonate Fault @ 23 TCA. A few splashes of chalcopyrite occur in a sliver of dull grey calcite in the fault.
- 69.10 125.00 Syenite From this point down hole, the overall grain size of the syenite decreases to medium to coarse. In conjunction with this change, the colour becomes a somewhat more grungy looking orange grey due to an increase in chloritic fractures and partly recrystalized mafic inclusions. It has already been mentioned that the magnetic susceptibility increases to 45 around this section, however, below 91.5m, the MS values again fluctuate between 22 and 47 with most hovering around 36. Staining for ankerite is negative.
- 74.68 74.73 Fault Zone As with the faults above, this FAZ is characterized by grey blue fracturing and alteration @ about 40 TCA with a film of mud and nil sulphides.
- 96.21 96.23 Fault Zone Centred around chlorite carbonate slips @ 50/ 40 TCA, the fault has hematitized (brick orange altered) the walls for a total of 15cm. There are minor streaks of pyrite in chloritic fractures associated with the slips.
- 109.34 109.41 Fault Zone Another weak FAZ characterized by brick orange hematitization in the walls of a Crush Calcite Chlorite Fault @ 60 TCA. A slip surface on the fault exhibits blue grey streaks, possibly graphite- moly. There are no associated sulphides.
- 110.48 110.60 Fault Zone This is yet another hematitized zone surrounding bounding chlorite slips @ 35 TCA with no noticeable mineralization.

		Drill Ho	ole AK-0	3-06	P	age: 4	: OÍ 14	
Geology	Sample	From	То	Len	Sul	AU	AU1	AU2
	No.	(m.)	(m.)	(m)	8	OZ/T	OZ/T	daa

- 113.33 113.35 Fault Zone Similar to the previous zones, brick orange hematite and grungy dark grey chlorite alteration surround a central chlorite slip @ 35 TCA.
- 125.00 162.80 Svenite (bimodal) From this point on, there are up to 15% larger (to elongate tabular feldspar crystals 2cm), through the medium grained groundmass. disseminated Corresponding with the appearance of these phenocrysts, is a jump in the susceptibility to a fairly stable plateau of about 45 to about 130.0m where values start to oscillate in a lower range between 31 and 49 with an estimated mean of 38. It is also at this point that local hematitic coarse to medium grained patches begin to appear more commonly. These patches range in width from a few centimeters to two metres (132-134m) in width and seem to be related to weak fractures, slips and foliated sections with accompanying grungy brick orange wall rock alteration/ hematitization. Common orientations of the fabric are about 70 +/- and 45+/- TCA. No veining or mineralization is associated with these alteration or structural features. As with the entire unit to this juncture, carbonate veining and pervasive carbonatization has been negligible, with calcite as the dominant carbonate mineral. There is also a noticeable dirth of mineralization. The bimodal unit ends on an arced contact with a medium grained zone @ about 25 TCA.
- 157.82 159.79 Mafic Intrusive In this case, MI represents a mafic inclusion that cuts the porphyry along irregular, partly digested contacts @ 18/ 35 TCA. The inclusion is massive, fine to medium grained, dark green grey coloured with mm to 1.2cm scale pink feldspar laths that appear to be nucleating and growing out of the mafic host. Several pink orange ribs/ dikelets to 5cm transect the inclusion at high angles TCA near the end of the interval. The susceptibility of the 'MI' is 40.
- 162.80 176.62 Syenite (hybrid) This is a 'dirty' zone that seems to be a mix of the structure related hematized patches described above at 132m, fine grained massive orange segments that may represent internal contact phases of the syenite, and mafic inclusions similar to those at 157.82. When combined with windows of the coarse grained host syenite, it becomes a melange of textures and colours, mainly oranges overprinted with a streaky, dirty grey, none of it mineralized or veined. The MS values are generally low in the mafic inclusions and finer grained hematized zones (1-13) and normal, 24-39, in the syenite. The major variants are broken out below; the intermediate corridors consist of the host coarse grained syenite.
- 162.80 163.44 Syenite (medium grained) As indicated, this is a medium grained, light pink, felsitic phase of the intrusive, perhaps

From To (m.) (m.)

	Drill Ho	le AK (	13 - 06	F	age: 5	of 14	
Sample	From	То	Len	Sul	AU	AU1	AU2
No.	(m.)	(m.)	(m.)	ş	OZ/T	OZ/T	dqq

Geology

From To (m.) (m.)

> a partly digested granitic? inclusion with a serated/ transitional leading contact @ about 40 TCA and sharp trailing contact at 163.29m @ 65 TCA with a foliated (@ 80 TCA) medium pink grey segment to the end.

- 165.51 165.56 Fault Zone The fault is characterized by an upper 4cm of purple alteration and foliation followed by a 1cm mud gouge wafer @ 45 TCA.
- 165.56 168.88 Syenite Mafic Intrusive With the upper contact on the FAZ described above, this package is a mix of fine to medium grained orange syenite, possibly an internal contact phase of the syenite, and, amorphous, medium grey mafic blobs to 0.5m that may represent digested mafic inclusions within this contact phase. The interval also contains several short segments of coarse grained, hematitized host. Outside of the host, MS values range between 1.47 and 5.94; mineralization and veining are nil to trace.
- 168.88 172.94 Syenite (fractured) Similar to the hematitized structural zones described at 132m, the interval comprises medium to coarse grained syenite that is moderately fractured and locally foliated @ about 60+/- TCA resulting in a streaky greyish orange blend of colours. The fabric does not appear to be related to any focussed structure within the interval.
- 174.78 176.62 Mafic Intrusive Another zone reminiscent of a partly digested fine grained mafic inclusion, this member contains ribbons and lenses, and also ends with, medium grained, orange syenite. 2-4cm pink feldspar grains are also sprinkled through the mafic inclusion. Overall, it is light to medium pinkish grey, with a sharp leading contact on a chlorite shear slip @ 15 TCA and lower contact partly natural and partly on a chlorite slip @ 40 TCA. As with the hole to date, it is unmineralized and minor dull grey veining is calcitic.
- 176.62 206.00 Syenite (bimodal) A return here to the bimodal phase of the syenite as described previously, although it appears that the feldspar crystals grade upwards in size to 1.5cm rather than being defined by 2 distinct fractions. The light creamy white to pink feldspar laths are nested in a fine grained, dark grey green interstitial groundmass. Initially, the susceptibility drops gradationally from 19.8 at the start to 7.4 at 182m and rises to 27.4 at 184m. It then undulates gently between 18 and 28 to the end of the interval. Mineralization and calcite veining remain nil to trace. Scattered rare mafic inclusions to 20cm were noted but not described separately.
- 185.00 185.05 Fault Zone A small pile of gravel/ ground core and gouge mark this fault. It is difficult to identify an exact orientation, but it appears to cut the core axis at a high

From To (m.) (m.) Geology

	Drill HC	DIE AK (	)3 06	F.	age: 6	OI 14	
1	Prom (m.)						

angle.

- 188.67 188.83 Fault Zone This is a shear/ crush chlorite fault @ 70 TCA with a 4mm leading dull grey quartz stringer and 10% ladder type calcite veinlets. Veins and fractures host a few fine specks and splashes of chalcopyrite, less than 0.5% overall.
- 194.68 195.20 Shear Zone About 5cm of the contact zones are moderately well foliated @ about 40 TCA and the remainder, mildly foliated. There are no associated sulphides or veining.

#### 206.00 217.71 CONTACT ZONE

The contact zone can be broken down into two main elements, a coarse to medium grained fractured and foliated upper zone, and, a fine grained, brick red/ orange coloured, well fractured lower zone. The upper horizon, basically an extension of the bimodal phase, differs in that there is a general decrease in grain size down hole, although it is still relatively coarse grained, and the host becomes more deformed with a weak, but more persistent foliation fabric @ 40-50 TCA. Mild to moderate microfracturing and hematitization of the feldspar grains also increase towards the lower phase. At 209.95m, there is an abrupt reversal from calcite to ankerite as the dominant carbonate mineral in both the veining and matrix.

The transition point defining the contact between the upper and lower zones was taken at a 3mm thick pyrite vein @ 40 TCA at 210.60m. Within 30cm of the contact, the feldspar grains become more abundant and well hematitized (brick orange altered), as is the groundmass feldspar, to the point where the host appears massive. Minor interstitial mafics and chlorite filled fractures/ microfractures/ crushing impart a crackle texture to the alteration. From 215.50m to the end, there is a return to a medium grain size, created in part by the microfracturing, and in part, natural. The last 30cm are streaked to foliated, perhaps indicating a flow contact feature of the Murdock Creek Stock. It is through this lower member that sulphides become anomalous, generally as fine to medium disseminated pyrite grains and as minor streaks and clots (217.35m). Locally, mineralization amounts approximately 0.5% over 0.5m. The susceptibility ranges between 2 and 18.

217.00 217.02 Fault Zone - A weak chlorite breccia fault @ 50 TCA contains a few splashes of pyrite.

#### 217.71 220.95 TUFF SYENITE

Although light greyish orange in colour and somewhat resembling a very fine grained contact phase of the syenite, a fine foliation fabric and streaky texture indicate a syenitized tuff protolith. The fabric, @ 60 +/- TCA, is deliniated by fine, light to dark grey, lamellar streaks and shears that follow the original bedding features. The proximity to the major intrusive probably 'syenitized'/ cooked the contact zone and may have enhanced the

22005	209.68	210.50	.82	TR	.002	.000	62
22006	210.50	211.07	.57	0.5	.001	.000	31
22007	211.07	212.00	.93	TR	.000	.000	nil
22008	212.00	213.00	1.00	TR	.000	.000	nil
22009	213.00	214.31	1.31	TR	tr	.000	2
22010	214.31	215.60	1.29	TR	.000	.000	nil
22011	215.60	216.70	1.10	TR	.000	.000	nil
22012	216.70	217.39	.69	0.5	.001	.000	38
22013	217.39	217.73	.34	0.5	.001	.000	34

22014 217.73	218.69	.96	0.5	.002	.000	74
22015 218.69	219.60	.91	TR	.001	.000	31
22016 219.60	220.47	.87	0.5	.000	.000	nil
22017 220.47	220.94	.47	2	.003	.000	86
22018 220.94	221.72	.78	0.5	.002	.000	77

			:	Drill Hc	le AK 03	1-06	Pa	age: 7	of 14	
Fro (m.		Geology	Sample No.	From (m.)	ТО (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
		original bedding fabric through ductile movement. The host is very hard, ie will not scratch, and peppered with trace to 2% fine dissemiinated sulphides. The lower 35cm, which are separated from the upper section by a 15cm chloritic tuff and altered to a brick red colour, are medium textured and more fractured then foliated and may represent a syenite/ felsitic dike. Mineralization increases to 2% over this trailing section but veining remains negligible. The unit is pervasively ankeritized and the susceptibility ranges between 2 and 9.								
220.	95 223.79	SYENITE TUFF								
		mit is a start start and the start like in the start start and but a	22019		223.00	1.28	0.5	.001	.000	34 5
		This, the start of several zones of mixed lithologies, is characterized by a leading mafic tuff, intermediate syenite, and lower fine tuff similar to the syenitized tuff above. All the packages are ankeritic but the magnetic susceptibilities and sulphide contents vary individually.	22020 22021		223.70 224.65	.70 .95	TR 0.5	tr .002	.000	80
		220.95 221.74 Tuff - Leading the mixed zone with a sharp upper contact @ 45 TCA is a medium to dark grey green mafic tuff with shreddy/ streaky lighter buff grey lapilli? or fine flattened grains. There is a penetrative foliation @ about 50 TCA along which the fragments have been smeared. The MS values drop to 0.92 and 2.90 and mineralization is trace. The lower contact contains slivers of the following syenite before becoming more massive through a contact @ 65 TCA.								
		221.74 222.94 Syenite - The syenite is relatively massive, medium textured, and brick orange coloured at the start but rapidly becomes crushed to the point where a crude foliation fabric develops @ 60+/-TCA. Fractures are chlorite carbonate filled and include up to 0.5% sulphides. MS values jump to an average of 7.5.								
		222.94 223.79 Tuff - Very similar in character to the tuff in contact with the Murdock Creek stock syenite, this unit lacks the orange alteration. It is very fine grained and well foliated along very fine chlorite slips @ 50+/-TCA. The overall colour, pale tan, is streaked with the light grey of the chloritic foliation planes. The leading contact falls on a chlorite slip that cuts across the fabric; the trailing contact is @ 70 TCA. MS values are variable ranging between 1 and 5; mineralization is somewhat anomalous but does not attain 0.5%.								
223.	79 233.28	ALTERED SYENITE								
		More deformed than altered, a 'syenite' seems to form the dominant protolith	22022 22023		225.74 226.70	1.09 .96	0.5 0.5	.001 .001	.000	26 34
		in this interval. Intermixed with the symple are rafts of mafic tuff/ flows	22023		227.15	. 45	0.5	.001	.000	27
		and aplite dikes. The overall appearance of the unit is that of a coarse	22025	227.15	228.12	.97	0.5	.002	.000	69
		arkose, granular looking with varying percentages of coarse medium orange grains in a green grey matrix, however, where the clast concentrations are	22026 22027		229.23 230.00	1.11 .77	TR TR	.001 .001	.000	21 22
		the highest, the pieces seem to fit together into a massive texture that has	22028		230.00	1.00	TR	tr.	. 000	15

									1	JIII HO	DIE AK-U3	06	Po	age: o	OF 14	
From (m.)	ΤΟ (m.)					Geology			Sample No.	From (m.)	ТО (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
		been	tectonically	deformed.	The	cataclasis	of a svenite host.	possibly a	22029	231.00	231.62	.62	TR	tr	.000	3

phase of the Murdock Creek stock, induced the arkosic texture. Matrix material could be envisioned as the chlorite altered mafic groundmass of the very coarse grained phase of the stock and and the arkose grains as granulated feldspars. In fact, matrix material comprises dark grey green chlorite, dull grey carbonate (ankerite), and dull yellow sericite.

The magnetic susceptibility of the 'syenite' starts relatively high at 8.52 dropping to between 0.54 and 4.54 over most of the interval. Sulphides are generally trace to anomalous and associated with very minor veining and structures, aggregating up to 5% over 5cm or so. Veining, usually ankeritic with minor quartz, accounts for approximately 0.5% of the package; the matrix is strongly ankeritic.

- 227.00 227.10 Quartz Vein Zone Broken Blocky Core A 3cm quartz carbonate vein @ 45 TCA is nested in a 15cm section of broken core that probably represents a fault at the same attitude as the vein. About 5% sulphides occur in fractures in the vein. The host seems to be a mafic volcanic sliver similar to that described below.
- 229.22 230.04 Basalt Beginning on a 2cm thick brick orange aplite dikelet © 55 TCA, the mafic assemblage is moderately foliated throughout @ 45- 55 TCA. There is an immediate loss of the granular texture of the syenite and replacement by a fine grained streaky to mottled foliated carbonate that overprints a medium blue grey mafic volvcanic base. The fabric highlights possible tuffaceous and fragmental textures, more massive segments may represent thin massive flow units. A few narrow ribbons of granulated syenite also cross the interval. The MS values are consistently around 5 over the leading 0.5m and below 1.00 for the rest. Milneralization is trace and the carbonatized fabric, ankeritic.
- 231.94 232.10 Felsic Dyke One of the thicker felsic dikes, it cuts the host @ about 55 TCA. It is massive, very fine grained, bright brick orange in colour and is laced with a network of fine. ladder like white ankerite veinlets/ fractures that host about 3% pyrite. The susceptibility is 1.21.

#### 233.28 244.56 BASALT

This is another hybridized zone that appears to be dominantly mafic volcanic in composition with interlensed units of 'syenite', chert? and felsic dikelets. The most prominent of these mafic horizons occur at 233.28-233.78m, 234.46- 236.32m, 237.39- 238.82m, 242.77- 244.58m with additional narrow slivers included within the 'syenite'. Typically, the volcanics are fine grained, light buff grey/ green, massive textured but overprinted with puffy creamy/ buff carbonate alteration patches and fracture fillings. Locally, the texture becomes choppy/ shreddy and slightly darker green over

ample	From	ТО	Len	Sul	AU	AU1	AU2
NO.	(m.)	(m.)	(m.)	ala	OZ/T	OZ/T	ppb
22029	231.00	231.62	.62	TŔ	tr	.000	3
22030	231.62	232.10	.48	0.5	.000	.000	nil
22031	232.10	233.30	1.20	TR	.001	.000	19

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22032	233.30	234.46	1.16	TR	.001	.000	26
22033	234.46	235.32	.86	TR	.001	.000	19
22034	235.32	236.00	.68	TR	.000	.000	nil
22035	236.00	236.66	.66	TR	.001	.000	38
22036	236.66	237.39	.73	0.5	tr	.000	11
22037	237.39	238.38	.99	0.5	tr	.000	10
22038	238.38	239.29	.91	0.5	.001	.000	17
22039	239.29	240.10	.81	0.5	tr	.000	12
22040	240.10	241.20	1.10	0.5	.000	.000	nil

From To (m.) (m.)	Geology	Sample No.	From (m.)	TO (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
	5- 10cm which is interpreted as a breccia zone within the sequence of massive flows. Segments of crushed syenite are also included within the package. The buff coloured patches and fractures are strongly ankeritic, but in general, mineralization is trace. MS values vary from one flow section to another, ranging from highs of 31 over the leading interval and dropping to 1- 6 in the lower flow with local spikes of 51.6 in a fragmental section at 237.53m and 83.5 in a magnetite speckled contact zone at 242.90m.	22041 22042 22043	241.20 242.50 243.15	243.15	1.30 .65 1.42	TR 0.5 TR	tr .002 .001	.000 .000 .000	2 79 21
	Two distinctive magnetically strong members, at 236.66- 237.39m and 239.90-240.06m, that are fine grained, massive textured and light bluish grey in colour, resemble chert lenses but are not siliceous (ie, will scratch). Contacts with the enclosing rocks are sharp, natural @ 45/ 65 and 35(curved)/ 65 TCA, respectively. The thicker of the units is fractured along the core axis near the start with creamy beige alteration and pyrite lining the walls of the fracture. Absolute MS values range from 26.6- 87.3 in the upper lense and 61.5 in the lower, the only one in which free magnetite is visible.								
	The remainding segments of the overall interval consist of the granulated syenite masses described previously. There is a more subdued appearance to these sections as the feldspars are not as brightly altered, the tones tend to range in the pale pink/ orange grey spectrum. The crushing/ microfracturing is generated more in situ with generally weaker foliation development @ about 60 TCA. The overall sulphide content ranges from trace to anomalous with local enrichment to 0.5% over a metre or so. MS values are relatively well constrained to a range of 15-21.								
	241.70 242.05 Broken Blocky Core - The core here appears broken along fractures at low angles TCA rather than along a focussed structure.								
244.56 249.00	ALTERED SYENITE								
	This is basically a continuation of the granulated 'syenite', more as described in the code 4 interval above than at 223.79m. The overall colour ranges from light pastel pinkish grey to light greyish orange and the crushing/ microfracturing and related textures persist. Also included are thin mafic flow members and a few bright orange felsite ribbons. The leading contact is sharp, natural, but irregular @ 40/ 45 TCA, the lower contact is equally sharp but falls on a strong chlorite slip @ 60 TCA. The susceptibility of this syenite is somewhat more varied ranging between lows of 10 and highs of 39. Mineralization averages trace but climbs locally to 10% over 12cm at 146.60m. Although there is no significant veining, the matrix remains strongly ankeritic.	22044 22045 22046 22047 22048	244.57 245.47 246.20 246.75 247.71	246.20 246.75 247.71	.90 .73 .55 .96 1.29	TR TR 2 TR TR	tr .002 .002 tr tr	.000 .000 .000 .000 .000	7 57 67 15 14
249.00 258.70	TUFF ANDESITE	22242	240.00	250.20	1 20		000	000	
	This may be the continuation of the mafic sequence but the overall lighter colours and the mottled, streaky and foliated textures imply a more felsic	22049 22050 22051	249.00 250.28 251.10	251.10	1.28 .82 .84	TR 0.5 TR	.000 .003 .008	.000 .000 .000	nil 94 290

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From	ТО
(m.)	(m.)

Geology

to intermediate composition for a volcanic flow and tuff protolith. Mixed with the flows and tuffs are felsite dikes and minor 'syenite' slivers. As with the previous volcanic intervals, more massive, fine grained, mottled sections as from the start to 251.67m, are interpreted as massive flows. In fact, this leading unit is characterized by light to medium buff/ blue grey mottling in addition to the massive nature and fine grain size. Minor foliated sections represent interflow tuffs. Apart from the felsite dikes, mineralization in the flows is trace; MS values are moderate, in the 2.0 7.5 range.

Below 251.67m, the host is generally more streaky to foliated @ 45- 60 TCA with a few sections of spindly/ lamellar texture suggesting a lapilli tuff origin and minor massive (flow) patches. The foliation planes and lapilli are highlighted by creamy buff to pink carbonate although the entire volcanic interval is strongly pervasively ankeritic. Approximately 20% of the tuffaceous corridor consists of light orange and pink granulated/ medium grained syenite bands to 20cm (average about 10cm), generally with well defined contacts parallel to the fabric @ 45- 60 TCA. In some of these bands, the feldspars are more mauve brown coloured. The sulphide content of the tuffaceous zone is anomalous due mainly to pyrite concentrated in the syenitic bands which average 0.5-1%. The susceptibility is generally low, around 1 and ranging up to 4.45 in places, except between 256 and 257m, a massive (flow?) section where it rises to 13.

250.32 250.73 Felsic Dyke - This, the largest of the felsic dikes, is followed by narrower ones at 250.90m (5cm), 252.10m (7cm) and 252.50- 252.83m. The attitude of the contacts, most of them irregular/ wavey, varies for these dikes as follows from upper to lower: 40/ 55 TCA; 60/ 45 TCA and pinching together; 60/ 40 TCA; and, 35/ 40 TCA. All are massive, brick orange coloured, fine grained, and well fractured with ankerite fillings. Mineralization averages approximately 1% as coarse pyrite grains; MS values are <1.0.</p>

#### 258.70 262.24 LAPILLI TUFF

The change to lapilli tuff was arbitrarily taken at a point where the lamellar/ lensoid texture became more prominent than straight foliation and the colour of the protolith changed to predominantly buff to creamy beige. The flattened lensoid shapes were interpreted as fine stretched fragments/ lapilli. Towards the end of the interval they become more consistently creamy beige coloured indicating a more felsic composition. MS values in the upper half of the interval range between 3.0 and 10.0 whereas the lower section averages about 0.35. Approximately 0.5% sulphides are disseminated throughout or streaked along the fabric planes (55-60 TCA). The trailing contact with the green carbonate is sharp, natural, rolling @ 55 TCA.

262.24 266.30 GREEN CARBONATE ZONE CARBONATED ZONE

	Drill Ho	06	Pa	ge: 10	of 14		
Sample No.	From (m.)	TO (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
22052	251.94	252.85	.91	0.5	.004	.000	122
22053	252.85	253.90	1.05	TR	.001	.000	48
22054	253.90	255.00	1.10	0.5	.004	.000	125
22055	255.00	256.00	1.00	0.5	.001	.000	48
22056	256.00	257.00	1.00	TR	.003	.000	99
22057	257.00	258.00	1.00	0.5	.002	.000	75
22058	258.00	258.70	.70	1	.004	.000	146

22059	258.70 260.0	0 1.30	0.5	.004	.000	135
22060	260.00 260.9	4.94	TR	.006	.000	211
22061	260.94 261.4	8.54	1	.006	.000	206
22062	261.48 262.2	4.76	0.5	.017	.000	597

			Drill Hole AK	03-06	Pá	age: 11	of 14	
From <b>To</b> (m.) (m.)	Geology	Sample No.	From To (m.) (m.)	Len (m.)	Sul 옿	AU OZ/T	AU1 OZ/T	AU2 ppb
	Through the wavey contact described above, the core rolls into a very weak section of green carbonate to about 263.65m and dull green grey carbonate to the end. The upper zone is characterized by scattered, very light pastel green fuchsitic patches in a dull greenish grey strongly carbonated host. Towards the lower part of the carbonate zone, the colour darkens as the chlorite content of the matrix increases towards the break. The texture of the carbonate resembles that of the lapilli tuff, a spindly fracturing/ foliation @ $60/$ 45 TCA that becomes irregular and shredded, actually more fragnental looking by about 264.90m. This may be a tectonic effect of the Larder Lake Break.	22064 22065 22066 22067	263.00 264.1 264.10 264.7 264.78 265.6 265.66 266.3	8.68 5.88	TR 0.5 TR TR	tr .000 .000 tr	.000 .000 .000 .000	10 nil nil 5
	Mineralization in the carbonate zone is trace overall but ranges up to about 0.5% over a metre or so around two parallel 1.5cm wide silicified bands at 264.20/ 264.30m. Pervasive ankeritization of the matrix is very strong; the magnetic susceptibility averages about 0.22.							
266.30 266.	10 LARDER LAKE BREAK The carbonate zone ends abruptly against the Larder Lake Break which starts with a 5cm plug of gouge and mud @ 75 TCA. This is followed by 30cm of slate grey mylonite?, crushed/microfractured sediment with a 4cm quartz ankerite vein, and ends with a 2cm band of dark grey silicification. There is a trace of very fine pyrite.	22068	266.30 266.7	0.40	TR	.001	.000	46
266.70 278.	TUFF TRACHYTE TIMISKAMING GROUP The leading unit of the Timiskaming Group rocks consists of a massive package of fine grained trachytic tuffs. As expected, near the break they are well fractured and altered, both weakening with depth to about 270m, at which point the fracturing is mild to moderate and the bleaching of the tuff starts to decrease. Overall, the tuff is massive, fine grained with minor gritty lenses and rare pebbles/ clasts, creamy yellow green/ grey coloured (bleached) to 270m and mottled light beige and mauve grey to 273.5m. From 273.5 to 274.6m, the colour changes to a light yellowish olive which is indicative of a sedimentary (greywacke) host although no jaspers were observed. Beyond, to 276.50, the colour darkens to a medium grey with a purplish caste, more typical of fresh trachyte tuff. From this point to the end of the interval, it is moderately altered around a sericite shear slip @ 55 TCA at 277.30. Most of the fine clasts and grit particles are various shades of pink/ orange/ purple indicating an alkalic provenance. Through the degrees of alteration, strong ankeritization of the matrix persists. From about 271m to the end, there is a noticeable increase, to 8%, in ankerite veining and fracture filling at various angles, but commonly @ 70/ 40 TCA. MS values are unusually low for a trachyte, ranging between 0.19 and 0.53 but clustering around 0.26. The overall sulphide content is nil to trace with rare anomalous concentrations in fractures or slips.	22069 22070 22071 22072	266.70 267.7 267.70 268.8 268.80 269.5 269.50 270.2	0 1.10 0 .70	TR TR TR	.000 .001 .001 tr	.000 .000 .000	nil 24 26 12

267.54 267.56 Fault Zone - A weak carbonate chlorite fault @ 45 TCA, it has

				Drill Ho	ble AK-03	06	Pa	ige: 12	of 14	
From (m.)	TO (m.)	Geology	Sample No.	From (m.)	То (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
		no associated sulphides.								
		269.18 269.27 Fault Zone - This is a weak Shear Chlorite Fault @ 65 TCA with minor fractured quartz carbonate veining and trace sulphides.								
278.06	279.94	MUDSTONE Typical of the siltstones in other holes in the program, the unit is very fine grained to aphanitic with local finely laminated/ bedded sections @ 60 TCA. At 279.61m, a nose of a fold cuts the core with an axial plane of 65 TCA. It is accompanied by a few streaks and nests of pyrite, amounting to approximately 20% over 5cm, along the axial plane. The leading contact is natural in part and related to a sericite carbonate slip @ 55 TCA, the lower contact more irregular and slightly gradational into a fine grained tuff @ about 70 TCA. Overall, the colour is medium olive grey near the start where the alteration is mild to moderate and greyish olive/ lime green where more moderately altered downhole around a weak fault @ 55 TCA at 279.33m. Ankerite veining drops to about 3% over the interval but the strong pervasive ankeritization of the matrix persists. Apart from the pyrite associated with the nose of the fold, the sulphide content of the mudstone is trace. MS values are consistent at 0.21.	22073	279.32	2 279.94	.62	0.5	tr	. 000	9
279.94	296.75	TUFF ARKOSE It is difficult to describe the host lithology using the code 4 list. Basically, the protolith consists of a trachyte tuff with gritty/ arkosic horizons and minor pebbly lenses and scattered isolated clasts. An estimated 85% of the unit comprises fine to very fine grained tuff that is variably coloured depending on the degree of alteration, medium to dark purple grey where relatively fresh, various shades of creamy mauve/ tan in mildly to moderately sections adjacent to minor slips and fractures, and light buff tan to buff green/ grey where more sltrongly altered. Although relatively massive throughout, local bedding features, @ 50/ 60/ 65 TCA, are highlighted by alteration. The remaining 15% of the core consists of clasts and pebbles to 5cm, but generally less than 2cm in size, and grit particles of 2mm or larger. Pebbles are rounded to subrounded and dominantly felsic/ alkalic in composition; gritty elements exhibit similar chemistries and also include eroded crystals from porphyritc regimes. As noted above, alteration is related more to minor structures than with veining, in fact, carbonate and guartz carbonate veins/ veinlets/ streaks	22074 22075 22076	280.68	280.68 281.36 288.07	.74 .68 .53	TR TR TR	tr .000 tr	.000 .000 .000	5 nil 2

veining, in fact, carbonate and quartz carbonate veins/ veinlets/ streaks constitute approximately 8% of the interval. Veins, which range up to 2cm in width, and cut the core at various angles TCA, are buff, white and creamy tan in colour and ankeritic in composition; the matrix is also strongly pervasively ankeritic. Mineralization is nil to trace with only a few pyrite grains noted in structure related veining. The susceptibility seems to be unrelated to alteration or texture, bouncing between 0.30 and 21.0 after a relatively stable platform below 0.60 to 284m.

			 	0 00		
From (m.)	Geology	Sample No.				AU2 ppb

Drill Hole AK 03-06

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- 287.67 287.72 Carbonated Zone This plug of tuff which is veined with 25% spidery quartz ankerite and well altered, trends at 55 TCA and contains a few scattered grains of pyrite. Moderate alteration extends about 0.4m down hole.
- 291.90 292.00 Fault Zone Recovered as a pile of small chips and gouge, it is difficult to determine the core angle of the structure, however, minor orange carbonate veining that may be associated with the gouge in the fault, suggests that the structure may trend @ about 30 TCA. There is no accompanying mineralization and only minor alteration down hole.

#### 296.75 323.63 TUFF GREYWACKE

The overall interval comprises a fine grained, massive, weakly altered tuffwacke sequence with very few gritty or pebbly sections. Apart from an intercalated mudstone horizon, bedding is rare and and only faintly defined @ about 55 TCA. The leading contact is fairly sharp, natural, @ 43 TCA, occuring at a transition from a gritty lense to the fine grained massive tuff. Coincident with the contact is an immediate decline in the carbonate veining which drops to much less than 0.5%. The colour of the host varies with no apparent correlation to structure or veining, because there is none. It appears that subtle changes in grain size, and probable associated changes from a trachytic tuff composition, which is purple grey in colour, to a more detrital/ sedimentary affiliation, cause the colour change to light grevish olive green. Crudely corresponding with the colour change, are the MS values which are generally higher in the slightly coarser fractions, in a range of 5-19, and lower in the finer grained sections, say below 5. The matrix continues to be strongly ankeritic and mineralization, nil to trace.

- 303.90 306.58 Mudstone Intercalated with the tuffwacke is a well bedded/ laminated, @ about 45 TCA, mudstone segment. Contacts are faint and somewhat gradational with local slivers/ tongues of mudstone within the wacke. The upper contact seems to fine down hole perhaps indicating the topping direction. As with previous mudstones, they are very fine grained/ aphanitic and medium olive grey coloured. Two contorted white ankerite quartz veins to 2cm cut the host near the end of the interval. Mineralization, including around the veining, is trace to nil. MS values through the mudstone average 0.23.
- 317.90 318.10 Mudstone The mudstone here is a 2-3cm ribbon that meanders along TCA over the interval.
- 322.64 322.66 Carbonated Zone The only thing of note in this interval is an irregular white carbonate vein to 1.5cm @ 50 TCA that contains a train of pyrite crystals.

0	Geology

Drill Hole AK-03-06	Page:	14	of	14	
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Sample	From	То	Len	Sul	AU	AU1	AU2
No.	(m.)	(m.)	(m.)	010	OZ/T	OZ/T	ppb

#### 323.63 335.00 MUDSTONE

The hole ends with a thick sequence of finely laminated/ bedded mudstones that are interbedded with thicker beds and lenses of very fine grained greywacke. For 3.5m up hole from the contact, the wacke is very fine grained and approaches the mudstone texture, however the actual contact was taken at an abrupt change from a gritty lense to aphanitic mudstone @ 53 TCA. Bedding attitudes are somewhat variable but cluster around 50 TCA with local minor contorted bands as at 330.45 & 332.13m. Top indications are confusing with some graded bedding, scouring, rip up clasts, flame textures and mud cracks? indicating tops up hole and others, tops down. Colours of the host indicate, in a general sense, the relative grain sizes with the light yellow olive bands being the finest/ aphanitic grained, and the dark to medium olive grey ones, slightly coarser. The yellowish caste is imparted by fine sericite and carbonate in the matrix. A section between 329.57 and 330.41m contains crosscutting lenses and dikelike bands of black speckled fragments and eroded crystals, possibly formed by the coarse clastic sediment slumping into the mudstone and breaking it up and infilling around the rip up clasts. At 331.57m, a very fine jasper grain was identified, thereby confirming the change from a tuffaceous environment to sedimentary.

The changes in colour are not apparently related to alteration associated with structures or veining since there is virtually none. The few veins cutting the host are ankeritic as is the carbonate in the matrix. MS values are consistently below 0.40, most of them falling below 0.20. The sulphide content remains nil to trace; local anomalous concentrations occur in dull white ankerite quartz veins as at 330.80- 330.85m (7%/5cm @ 45 TCA).

326.01 326.02 Fault Zone - The only significant structure is this Mud Fault @ 45 TCA that is characterized by a 4mm mud seam with a few parallel chlorite slips and no associated alteration.

335.00 335.01 End of hole - The hole ends in the mudstone unit.

22077 330.69 330.96 .27 0.5 tr .000 3

	Deci 11 17-	1 -	NY 02 U	Q	JEENSTON N	AINING INC								
	Drill Ho	pie:	AK-03-7	DIAI	MOND DRIL	L HOLE RECORD					P	age: 1	of 14	
	Property	/:	AMALGAMATED KIRKLAND									age. 1		
	Northing	3:	10140.00											
	Easting:		8600.00											
	Elevatic	on:	318.00	*** Dip Te		*** Dip Tes				Started:			er 28, 20	
				Depth Azi.	Dip	Depth Azi.	Dip		Date C	Complete	d:	Decemb	oer 3, 200	03
		zimuth (Gri		<i>.</i> .										
	Collar D		-72.00	6.0	-71.0	270.0	-63.5		Drille	-			and Sherv	wood
			als 341 degrees True)	90.0	-67.5	360.0	-61.0		Core S			NQ		
	Hole Len	igth:	470.00	180.0	-67.0	450.0	-58.0			Lal left Location		e NX CAS		ita 1
	Date Pri	.nted:	19 Apr, 2004						Logged		:	FR Plo	Canada Si	ite 1
From	То			Geology			Sample	From	То	Len	Sul	AU	AU1	AU2
(m.)	(m.)			~ *			No.	(m.)	(m.)	(m.)	8	OZ/T	OZ/T	ppb
		SUMMARY LOG												
.00	5.00	OVERBURDEN	ſ											
5.00	59.42	GREYWACKE	CONGLOMERATE											
59.42	82.76	GREYWACKE												
82.76	115.90	CONGLOMERA	TE GREYWACKE											
115.90	120.50	FAULT ZONE	BROKEN BLOCKY CORE											
120.50	125.00	CONGLOMERA	TE GREYWACKE											
125.00	188.00	GREYWACKE												
188.00	262.40	TRACHYTE A	GGLOMERATE TUFF											
262.40	302.55	TRACHYTE T	UFF											
302.55	308.45	FAULT ZONE	CARBONATED ZONE											
308.45	356.30	GREYWACKE												

356.30 369.35 CONGLOMERATE

369.35 374.45 TRACHYTE

374.45 470.00 TRACHYTE AGGLOMERATE



From	То	Geology	Sample	From	ТО	Len	Sul	AU	AU1	AU2
(m.)	(m.)		No.	(m.)	(m.)	(m.)	8	OZ/T	OZ/T	ppb

#### .00 5.00 OVERBURDEN

The hole, collared at the south base of an outcrop ridge parts of which haad previously been stripped about 300m to the northwest, was designed to test the downward extent of a narrow high grade vein system intersected in hole AK-03-05 and previous holes drilled by Battle Mountain/ Cyprus.

#### 5.00 59.42 GREYWACKE CONGLOMERATE

The upper portion of the hole to 19.50m, is well broken along numerous weak slips that follow, or cut, the core axis at low angles. When taken in conjunction with near surface weathering and fracturing, they have combined to cause the broken ground with an estimated RQD of 30 through this upper 14.5m.

The protolith over this entire interval, although well altered and deformed, appears to comprise a fine grained to gritty sediment (greywacke) containing local gritty and pebbly lenses and the odd fine trachytic fragmental. Overall, the wacke is strongly bleached to a light orange/ yellow/ pinkish grey colour with local patches to several metres that are more medium greyish orange/ pink or pinkish green depending on the composition and degree of alteration of the host. It is fine grained but speckled with slightly coarser chips/ grit particles that often occur as bands or lenses sometimes grading into pebbly horizons as from 6.00- 13.00m. The grit and pebbles are a polymict mix of trachyte, sediments, volcanics and porphyries of varying grain sizes along with the rare, but identifiable, red jasper clasts. Pebbles average about 1cm in length but range as high as 6cm. A fine dark green speckling/ flaking in certain finer grained zones (eg 37.50m) results chloritization of mafic grains/ gritty particles. Clearly defined bedding attitudes are difficult to identify because of the degree of deformation, however, the alignment/ imbrication of some clasts and certain lenses of grit indicate bedding angles of 30- 40 DTCA.

alteration, consisting of strong bleaching, As mentioned, the carbonatization and sericitization, along with a moderate tectonic fine foliation overprint, has masked many of the original characteristics of the protolith. Despite the strong alteration, veining is minimal, consisting of 1-2% buff white ankerite stringers and patchy veins to 2cm as well as very fine spidery to thready veinlets and shreds. Most of the veining is concentrated in the walls of weak faults/ slips or in stringer zones; guartz is minimal except as noted below. The composition of the carbonate in the pervasively invading the matrix is ankerite. veining and that Mineralization, trace overall, consists of rare, widely scattered fine pyrite (py) through the matrix and in fractures. The magnetic susceptibility (MS) gently undulates within a low range of 0.13 to 0.34, with local lower and higher regimes that may be related to slight variations in the composition of the host. Sampling reflects slight increases in the veining or mineralization and is generally broken out below.

13.65 16.05 Trachytic - Visually, this interval appears to comprise a pebbly

87510	27.50	28.35	.85	TR	nil	.000	nil
87511	42.90	43.65	.75	TR	tr	.000	10
87512	58.10	59.10	1.00	TR	tr	.000	17
87513	59.10	59.85	.75	TR	tr	.000	10

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Drill Hole AK-03-7

	Drill Hole AK-03-7		)3 · 7	P				
Geology	Sample No.				Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb

a fine grained matrix in which most of the clasts are variably pink/ creamy orange coloured, possibly trachytic in composition. Coincident with the start of this interval. the MS values jump to an elevated level of 0.60- 0.70; therefore, it is interpreted as a pebbly trachytic tuff unit.

- 23.20 24.20 Fault Zone The fault here mirrors the slips near the start in that it trends along, and at low angles, to the core axis. It does not appear to be very strong but the lower half contains a 1cm mud gouge along the structure.
- 27.50 28.30 Carbonated Zone The host is cut by a series of irregular buff white carbonate stringers and veins (20%) to 2cm that that cut the core at low angles (to 20 DTCA). Some veins are lined with a thin coating of chlorite but overall, they do not appear to be related to any significant structure and are not mineralized.
- 45.30 46.50 Greywacke A change in colour to light streaky green suggests a decrease in the intensity of the alteration through this gritty wacke which contains a few red jasper chips. It begins on a curved chlorite slip @ 12 DTCA and ends on a 0.5cm gouge fault @ 30 DTCA
- 59.35 59.42 Fault Zone The fault here consists of a moderately strong lime green, sericite shear structure @ 40 DTCA with mud on some of the slips. It is preceded by typical light green pink altered gritty wacke that is mineralized with slightly anomalous (<0.5%) fine disseminated py. There is no quartz veining associated with the fault but it does seem to mark a change in host rock texture.

### 59.42 82.76 GREYWACKE

At the fault described above, the protolith becomes creamy beige coloured with local yellowish and greenish washes and dark green chlorite/ amphibole? streaks, patches and grains that resemble stretched/ foliated clasts. There is a penetratative weak to moderate foliation fabric trending @ 30- 40 DTCA along which the green streaks and lighter massive beige bands/ beds? are aligned. Evident, at 64.20, 72.40- 73.45, 74.70, and 76.40- 78.80m, are coarser gritty lenses characterized by the dark green- green grey streaking rather than the polymict lenses described previously. Also intercalated with the fine grained, granualar textured wacke and gritty lenses, are very fine grained, creamy beige coloured, cherty?/ silty lenses/ beds (71.34, 75.50, 79.40, and 82.25m) that parallel the weak fabric @ 41 DTCA.

MS values begin at 0.08 and gradually rise to a narrow band of 0.15-0.21, with a short interval of 0.22- 0.27 between 71.30 and 75.45m which generally corresponds with the fragmental zone and ends on a very fine grained. 20cm wide, creamy beige, cherty layer. The matrix remains strongly ankeritic as are the 2% dull white carbonate veinlets and chlorite lined qashes that cut the host. Mineralization, consisting of very fine py, amounts to trace

87514	59.85	60.80	.95	TR	tr	.000	3
87515	64.80	65.95	1.15	TR	nil	.000	nil
87516	74.40	75.75	1.35	TR	.001	.000	21
87517	78.25	79.50	1.25	TR	tr	.000	7

	lense	in
	variab	lv

From To (m.)

(m.)

				Drill H	ole AK-03	3 - 7	Pa	age: 4	of 14	
From (m.)	To (m.)	Geology	Sample No.	From (m.)	TO (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
		overall with local minor/ narrow anomalous zones of <<0.5% over 5-10cm. Some of these zones and areas of slightly enriched veining were spot sampled but not necesarily broken out separately.								
		78.67 78.77 Fault Zone - Similar to the leading fault to the interval, it is crushed and moderately sericitic @ 40 DTCA with very fine thready yellow shear planes. There is no accompanying veining or mineralization.								
82.76	115.90	CONGLOMERATE GREYWACKE	87518	115 3	0 116.45	1 15	סיד	.001	.000	34
		Through a gradational contact, the core rolls into a unit in which there is a gradual increase in the pebble content and MS values with a corresponding decrease in the intensity of alteration. The pale creamy beigey colour gives way to a medium grey to greenish grey while the wacke becomes pebbly to conglomeratic in places. The clasts are polymict, although jasper chips are rare, and occupy approximately 20% over the upper 12m, decreasing to 1-3% over the remainder. Individual pebbles rnge up to 9cm in the leading conglomeratic zone but are generally much smaller, resembling grit, lower in the interval. The wacke is more massive looking, having lost the weak to moderate foliation fabric from above, but gaining a weak sporatic crushing that is highlighted by 1-2% fine white carbonate shreds and gashes. This carbonate, as well as that which pervasively invades the matrix, is strongly ankeritic. There is no anomalous mineralization associated with the fracturing, the sulphide content remains trace. As mentioned, the MS values rise dramatically to 96.80m, where they undulate within a range of 2.29- 12.7, averaging about 6.00. They then drop to a lower platform clustering around 0.60 but ranging as low as 0.35 and as high as 1.24 to 111.20m before moving back into the higher range that spikes at 117.0 on a series of 1-2mm laminae/ trains of magnetite @ 16 DTCA. This implies that the other higher values result from anomalous fine magnetite in the matrix.								
		86.09 86.10 Fault Zone - This is a weak chlorite carbonate crush fault that cuts the core @ 23 DTCA.								
		114.95 115.30 Broken Blocky Core - The core is broken into small pieces and very fine chips with no obvious structure present. It may represent a sympathetic feature related to the main fault immediately below.								
115.90	120.50	FAULT ZONE BROKEN BLOCKY CORE	87519	116.44	5 117.85	1.40	TR	nil	.000	nil
		The main fault zone begins with a leading chloritic shear @ 20 DTCA that ends the pebbly wacke and introduces a grungy light to medium greyish orange altered greywacke that persists through the zone. Except for an intact section over 55cm at the start, the core was recovered as small pieces and chips with gouge/ finely ground gravelly intervals over 30cm at 116.60 and 120.35m which combine to form the core of the fault zone. Determining the orientaion of the FAZ is difficult since the FAZ is so badly broken up (RQD	87520 87521 87522	117.89 119.00	5 119.00 5 119.80 5 120.60	1.15 .80 .80	TR TR TR	nil .001 .001	.000 .000 .000	nil 31 34

				Drill Ho	ole AK-03	- 7	Pá	ige: 5	of 14	
From (m.)	TO (m.)	Geology	Sample No.	From (m.)	T0 (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb
		0), but from internal weaker structures, it appears to trend at a shallow angle, say between 15 and 25 DTCA. The central part of the interval is veined with 5-7% white quartz carbonate streaks, veinlets and gashes at random orientations, and, loacally mineralized with 0.5% very fine dusty py and possible very weak graphite/ moly (at about 118.30m) which is typical of veining in the main Kirkland Lake camp. The MS values drop to a mean of 0.30 through the fault. Although badly broken up, it seems that the drillers have managed to recover all the core.								
120.50	125.00	CONGLOMERATE GREYWACKE								
			87523	120.60	121.60	1.00	TR	tr	.000	3
		This seems to be a continuation of the pebbly wacke that preceded the fault	87524		122.85	1.25	TR	tr	.000	7
		at 82.76m. Overall, it is a grungy spotted/ mottled, medium grey pink colour, and, massive with 5-10% polymict pebbles to 3cm in a fine grained gritty wacke matrix. The grungy colour is caused by the wall rock alteration down hole from the fault along with alteration associated with a network of chlorite carbonate slips that scar the host down the core axis over most of the length of the interval. The matrix remains pervasively moderately ankeritic while MS values gradually drop from 0.49 near the fault to 0.34 by the lower contact. Mineralization comprises the odd fine speck of py in the walls of the chlorite carbonate fractures. The lower contact was taken at a shear sericite fault @ 35 DTCA where the texture changes and the pebbles are lost.	87525 87526		123.85	1.00	TR TR	.001 nil	.000	30 nil
125.00	188.00	GREYWACKE								
			87527		131.00	.40	TR	.001	.000	27
		The hole now passes into a very thick section of massive greywacke through	87528		138.85	.80	TR	tr	.000	14
		the fault described above. To about 152.00m, it is light beigey green	87529		149.85	.40	TR	.001	.000	34 nil
		coloured with a widespread mottling back and forth into various shades and combinations of these colours. Beyond, the colour lightens to a more beige	87530 87531		154.35 157.00	.60 .50	TR TR	nil .001	.000	48
		dominated hue with local more greenish and greyish washes. Overall, however,	87532		168.20	.50	TR	.001 tr	.000	10
		the texture and fabric remain the same throughout, massive, fine grained	87533		177.00	.20	TR	tr	.000	7
		with the odd small pebble, feldspar crystal, or chip of grit, and moderately well altered. Downhole, an occasional pebbly lense and very fine grained cherty bands are intercalated with the wacke. MS values taper down from 0.29 to 0.38 near the leading contact to a lower range of 0.16 to 0.25 with occasional higher readings to 0.30. Ankerite remains the dominant carbonate mineral in the matrix while veining of any kind and mineralization are virtually absent, ie, <1% veining and trace py.	87534		188.00	1.15	TR	.001	.000	40
		131.50 131.90 Fault Zone - Cutting the core at a shallow angle (10 DTCA), is a 5cm thick carbonate quartz chlorite vein/ fault that is weakly mineralized with trace fine py and chalcopyrite (cp). It is followed by a similar weaker ragged chlorite carbonate alin about 1 5m down bale								

slip about 1.5m down hole.

138.13 138.23 Quartz-Carbonate Vein Zone - The vein comprises a mix of white ankerite and dull grey quartz with inclusions and fracture fillings of green black chlorite and pinkish feldspar(?).

				Drill Ho	ole AK-(	3 - 7	P	age: 6	5 of 14	
From		Geology	Sample			Len		AU	AU1	AU2
(m.)	(m.)		No.	(m.)	(m.)	(m.)	olo	OZ/T	OZ/T	pph

Although the walls are moderately altered and there are a few additional ragged veinlets over another metre down hole, mineralization amounts to trace.

- 149.45 149.85 Fault Zone This appears to be weaker version of the fault at 131.50m, that is characterized by two parallel chlorite carbonate slips @ 10 DTCA containing a jumble of fragmented carbonate and altered host rock. Only a few scattered py grains were noted in the zone.
- 153.75 154.35 Quartz Vein Zone It seems that the attitudes of the structures in this unit all cut the core at similar attitudes. The structure represents a quartz breccia fault @ 12 DTCA in which angular wacke fragments are encased in a white quartz vein. A second weaker quartz breccia vein (@ 15 DTCA) with minor chloritic fractures cuts the host lower down at 156.50-157.00m. Both structures/ veins are unmineralized.
- 168.00 168.02 Fault Zone This is a narrow weak chlorite carbonate shear fault @ 30 DTCA that contains trace fine py cubes.
- 176.40 176.46 Quartz-Carbonate Vein Zone This is a streaked patchy vein @ 58 DTCA comprised of dull grey quartz, pink and white carbonate, yellow green sericite and blood red hematite which contains a few specks of py.
- 181.60 182.10 Conglomerate The pebbly lense here contains a variety of clasts, but, standing out amongst all of these are a few bright emerald green fuchsitic ones.
- 187.70 188.00 Fault Zone A strong shear sericite chlorite fault @ 10/ 15 DTCA marks the end of the thick wacke unit and the low MS values. The fault is preceded by a metre of moderate shearing/ fracturing but only trace fine py.

#### 188.00 262.40 TRACHYTE AGGLOMERATE TUFF

Immediately below the FAZ, the magnetic susceptibility jumps into a much higher range, fluctuating between lows of 0.17 to highs of 22.0 but clustering around 6.00. Coincident with this rise is a subtle change, at least over the upper 19m or so to 207.00m, to a mainly tuffaceous host containing a few scattered clasts and pebbly/ clast rich horizons. This upper part is characterized by light pinkish to creamy grey and greyish beige colours that grade back and forth into one another, fine grain size, and clasts that are generally subangular in shape rather than rounded as in the preceding pebbly lenses, and that are dominated by pink colours and syenitic/ trachytic compositions. The MS values begin at 0.63, rising quickly to 16.9 in a fragmental horizon that ends around 196.50m, dropping to a trough of 0.17-0.28 in a fine grained, massive, tuffwacke section to 207.00m, before rising to the higher range again in the main agglomerate

17	.000	tr	TR	.60	203.60	203.00	87535
21	.000	.001	TR	.50	212.55	212.05	87536
nil	.000	nil	TR	.55	222.00	221.45	87537
nil	.000	nil	TR	1.25	223.25	222.00	87538
7	.000	tr	TR	1.20	224.45	223.25	87539
9	.000	tr	TR	.75	225.20	224.45	87540
nil	.000	nil	TR	1.15	226.35	225.20	87541
nil	.000	nil	TR	.55	226.90	226.35	87542
27	.000	.001	TR	.80	238.15	237.35	87543
21	.000	.001	TR	.65	238.80	238.15	87544
2	.000	tr	TR	.85	239.65	238.80	87545
10	.000	tr	TR	1.25	252.20	250.95	87546
7	.000	tr	TR	.50	262.50	262.00	87547

		Drill Ho	ole AK-0	3 7	F	of 14		
Geology	Sample	From	То	Len	Sul	AU	AUl	AU2
	NO.	(m.)	(m.)	(m.)	동	OZ/T	OZ/T	ppb

unit. Contacts between clast rich and tuffaceous zones are gradational into one another.

From To (m.) (m.)

> At about 207,00m, the colour darkens to medium green grey and clasts begin to form a greater percentage of the core, say an average of 20%. Most are various shades of light to medium pink, greyish pink, grey or grey green in colour and range up to 15cm but average about 1-3cm. Also included in the clastic component are porphyritic fragments and feldspar crystals eroded from the syenitic/ trachytic terrain, but, no jaspers. It is the medium green grey, fine grained matrix that determines the overall colour of the host, which, noteably, does not appear to contain any red jasper grains either. MS values seem to average around 6.00 to about 224.30m at which point they drop to a low range of 0.29 to 0.54 to 230.00m and then rise guickly to 23.5 within 1.5m before dropping down to 0.34 at 234.00m. Over the next few metres the susceptibilities again rise, peaking at 23.1, but averaging around 14.0 through a much darker phase of trachytic agglomerate that is broken out separately below. All through the various phases, the matrix remains moderately ankeritic, and veining, consisting of a few scattered wider dull white carbonate (guartz) veins to 3cm along with fine veinlets and gashes of ankerite, totals approximately 2%, streaks. concentrated mainly at the start. Mineralization remains weak throughout, occuring as trace fine py within the veins and their alteration halos.

- 203.24 203.44 Carbonated Zone A series of dull white ankerite stringers to 1cm @ 32 DTCA form 25% of the interval. The veins contain a few isolated splashes of cp, are roughly centred on a zone of moderate alteration from 200.50- 207.00m, and exhibit lower MS values (0.21- 1.08).
- 212.18 212.35 Quartz-Carbonate Vein Zone The interval contains two bounding dull white carbonate veins to 3cm with a central 1.5cm dull pink quartz vein, all trending at approximately 60 DTCA. The veins are lined with lime green sericite but do not contain any significant wall rock alteration and only trace sulphides.
- 221.70 221.78 Quartz-Carbonate Vein Zone The core of this vein zone contains alternating bands of dull white carbonate, pink altered host, and sericite streaking @ about 60 DTCA with no visible sulphides.
- 225.45 226.65 Agglomerate (altered) Three distinct carbonate +/-sericite +/-quartz alteration zones/ structures cut the core through this interval. Leading the interval is a 35cm wide, grungy looking, streaky light pink to beige to grey green, fractured/ foliated zone centred on a 1cm dirty white ankerite vein @ 35 DTCA that cuts weakly altered host. This is followed by a central weak zone from 225.40- 225.60m which is characterized by an upper weak sericite carbonate alteration slip @ 60 DTCA and several dull white ankerite veins to 1cm to the end. Finally, the interval ends on a 1.5- 3cm wide, pale pink

Sample							
NO.	(m.)	(m.)	(m.)	e/o	OZ/T	OZ/T	ppb

quartz vein @ 25 DTCA with a 2.5cm crushed sericitic and carbonate trailing lower contact, and accompanying fine yellow/ sericitic hairline fracturing/ foliation and carbonate gashes/ streaking over 40cm up and down hole. Only the lower structure contains visible py amounting to 0.5% over 5cm or so in the heart of the veining.

- 234.05 238.80 Tuff Trachyte This interval comprises a section of moderate bleaching/ alteration that appears to be associated with a carbonate fault zone along which the alteration ends (see below). The protolith consists of fine grained, massive, light beigey grey coloured, tuff/ wacke? containing the odd feldspar phenocryst, piece of grit or clast. MS values drop to a low of 0.34 through this section but mineralization remains trace.
- 238.20 238.80 Fault Zone The fault interval is cut by 35% random creamy pink/ white ankerite whispy, veinlets, gashes and fracture fillings and fine yellow green hairline sericite fractures and shear planes. The actual structure consists of a 5cm mixed zone of crushed/ jumbled dull grey quartz, dull white ankerite rimmed with bright orange feldspar/ barite?, and altered host all healed with bright yellow green sericite and green black chlorite all of which end on a strong chlorite slip @ 75 DTCA. Only the odd speck of fine py was noted in the FAZ.
- 238.80 258.90 Agglomerate Basaltic Komatiite Immediately below the fault, the matrix darkens to a dark grey green colour while the fragments remain dominantly medium grey pink, 1-3cm in size, and generally subangular in shape. As mentioned, the susceptibility climbs as high as 23.1 but averages about 14.0. For the first time in the hole, the matrix and veining become moderately calcitic from the upper contact to a fault at 252.10m, beyond which, the agglomerate again becomes ankeritic. Sulphides run nil to trace. The lower contact was taken at a point where a pinkish colouration begins to dominate.
- 251.00 252.10 Carbonated Zone Fault Zone Carbonate vein/ faults form the bounding structures of this, otherwise, weakly altered, medium grey green section of agglomerate. The upper structure comprises a 5cm thick pink and white carbonate (calcite) vein @ 70/ 55 DTCA while the lower, consists of 8cm of streaky pink and dull white calcite, ankerite and dull grey quartz veining and chlorite fractures/ slips all @ about 50 DTCA. Neither the veins/ faults or the host are mineralized.
- 258.90 262.40 Agglomerate Through a gradational contact, the agglomerate host is altered to a mottled, medium maroon (hematitic?) grey colour in which the fragmental features are weakly visible. By this point, the host is ankeritic in both the matrix and 1% gashy veinlets/ fractures. It remains unmineralized and MS

AU AU1 AU2 OZ/T OZ/T ppb

values fall into a range of 4.63 to 10.8. The zone ends on a 1mm to 3cm, ankerite breccia/ crush vein @ 15 DTCA that may have provided the conduit for the altering (hematitic?) fluids.

#### 262.40 302.55 TRACHYTE TUFF

At about this point, the fragment content is noticeably decreased to less than 5% with local gritty or agglomeratic lenses over a metre or so. Clasts are generally smaller in size, averaging approximately 1cm, but the composition and colour remain essentially the same, shades of pink, reflecting the trachytic/ syenitic provenance. Overall the colour is medium green grey with local gradations into more maroon and greener shades. The matrix material is fine grained to gritty and granular textured, closer to resembling a wacke then a tuff, however, the higher susceptibilities, which peak at 27.6 but average around 15.0 to 20.0, also contribute towards a trachytic origin. MS values drop in the vicinity of the stronger structures and alteration zones described below. Carbonate veining, in the form of dull white gashes, streaks, veinlets and stringers of varving orientations, account for approximately 4% of the host while mineralization remains trace, occuring as rare grains and splashes of py associated with the veining. Ankerite continues to form the dominant carbonate mineral in the matrix and veins.

- 266.00 266.01 Fault Zone A tight sericite shear fault cuts the tuff @ 40 DTCA and may be the focuss of some of the carbonate veining and gashing in this area.
- 272.50 272.57 Fault Zone Another sericte shear carbonate fault intersects the core @ 45 DTCA but has no associated anomalous veining or mineralization.
- 278.72 279.20 Fault Zone Broken Blocky Core The core is broken into small pieces and a pile of gouge through this quartz barite gouge fault @ about 45 DTCA. The agglomerate surrounding the FAZ is dark orange grey altered but the magnetics drop to lows of 0.47/ 0.48 approaching the structure from both sides. The walls are chlorite fractured with scattered 2-4% white ankerite gashes, veinlets and fracture fillings, but no sulphides.
- 285.45 285.57 Fault Zone This fault, which cuts the core @ 37/ 50 DTCA, was recovered intact. It comprises a chlorite fractured melange of medium orange altered host and carbonate, pale pink quartz and carbonate, dull white carbonate, and sericitized greenish inclusions, all of which are 'grunged' by the green black chlorite fracturing. The zone contains slightly anomalous to trace fine splashes of cp. From this point down to the main fault zone, the ankerite vein content decreases to 0.5%, the colour of the tuff lightens to a medium grey green, and MS values drop from 24.7 to 0.46.

87548	265.65 266.65	1.00	TR	nil	.000	nil
87549	272.45 273.20	.75	TR	nil	.000	nil
87550	278.50 279.20	.70	TR	tr	.000	3
87551	285.20 285.65	.45	TR	nil	.000	nil
87552	301.45 302.55	1.10	TR	tr	.000	10

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Drill Hole AK-03-7

				Drill Ho	ole AK-03	3 - 7	Page: 10 of 14				
From (m.)	TO (m.)	Geology	Sample No.	From (m.)	TO (m.)	Len (m.)	Sul %	AU OZ/T	AU1 OZ/T	AU2 ppb	
302.55	308.45	FAULT ZONE CARBONATED ZONE As mentioned, above the fault, the colour gradually lightens, until, through	87553 87554		5 303.70 304.70	1.15 1.00	1 TR	tr tr	.000	7 3	
		this interval, it is predominantly lime to olive green, indicating intensive	87555	304.70	306.05	1.35	TR	tr	.000	11	
		sericitization of the host. The sericite alteration occurs as streaks, fine	87556	306.05	307.25	1.20	0.5	.001	.000	21	
		feathery foliations, and solid pervasively altered sections. Original clasts/ fragments are manifested as dark grey angular shard to rounded clast shapes. Ankerite, which constitutes 25-30% of the interval, occurs as massive patches (303.00- 303.65m, 306.50- 306.80m), streaks and smaller patches/ veins, all of which are fractured and sericite- carbonate- quartz sealed. The carbonate rich zones contain up to 2% py crystals and splashes over widths ranging from a few cms to 0.5m, while the remainder of the matrix runs trace. There is really no well defined, focussed fault structure, however, the veining and fabric all generally trend @ 35-45 DTCA. MS values through this sericite ankerite altered fault zone range between 0.08 and 0.27. Most of the alteration terminates with a trailing l0cm weak sericitic shear zone @ 38 DTCA.	87557	307.25	308.45	1.20	TR	tr	.000	10	

## 308.45 356.30 GREYWACKE

Below this strong alteration zone, the hole traverses a thick section of variably altered greywacke. Near the start, it is moderately well altered to the extent that ultramafic clasts, originally black in colour, have been altered to bright emerald green (fuchsite). The wacke is massive, fine grained, granular textured with rare scattered pebbles and fine grit, and light blue/ green grey coloured. In addition to the green carbonate altered clasts near the start, bright red jaspers are also visible, and, throughout the massive wacke section of the unit, tiny red flecks/ sand sized grains, confirm the presence of jasper, thereby confirming a sedimentary wacke, rather than trachyte tuff, provenance. The entire unit is pervasively ankeritized with the 2% white carbonate veining that cuts the host also composed of ankerite. The susceptibility hovers around a relatively stable platform of 0.15 while mineralization continues to run trace with minor py concentrated within, or in the walls, of veins and structures. Some of the wider veins and groupings associated with structures are detailed below.

311.20 311.95 Quartz-Carbonate Vein Zone - The veining here is an isolated extension of the previous vein package related to the main structural feature above which ends at 308.45m. In fact, moderate bright lime/ olive green sericite alteration extends between the two veined horizons and gradually disappears below. The zone appears to be centred on a 2-3mm thick mud slip @ 60 DTCA that seems to be the focus of the overall fabric trend. It comprises a strongly sericitized wacke in which bright green sericite fills foliation planes and fractures, sometimes almost completely invading the host. Streaked into this altered wacke are broken, dull white, carbonate veins and patches to 1cm, and dull grey quartz

87558	308.45	309.40	.95	TR	.001	.000	41
87559	309.40	310.40	1.00	TR	tr	.000	14
87560	310.40	311.20	.80	TR	tr	.000	17
87561	311.20	311.95	.75	TR	.001	.000	21
87562	311.95	312.95	1.00	TR	tr	.000	10
87563	332.30	333.50	1.20	TR	tr	.000	7
87564	339.95	340.95	1.00	TR	tr	.000	14
87565	340.95	341.25	.30	25	.018	.000	621
87566	341.25	342.25	1.00	TR	.012	.000	410
87567	342.25	343.10	.85	TR	.008	.000	264
87568	343.10	344.35	1.25	TR	nil	.000	nil
87569	344.35	345.20	.85	TR	nil	.000	nil
87570	345.20	346.15	.95	TR	níl	.000	nil

				Drill Hc	ole AK-0	3 - 7	P	age: 11	of 14	
From (m.)	To (m.)	Geology	Sample No.	From (m.)		Len (m.)		AU OZ/T	AU1 OZ/T	AU2 ppb

veining (20%) with very fine dusty moly/graphite?. Minor anomalous py and cp grains and splashes occur within the cloudy grey moly patches near the guartz and carbonate veining.

- 332.39 332.45 Fault Zone Most of the interval consists of dull white ankerite accompanied by minor dull grey quartz and slightly anomalous fine py, all centred on a chlorite slip and fracturing @ about 50 DTCA.
- 341.03 341.10 Pyritic Silicified Zone An odd patch of massive and disseminated py, 75% over this short interval, seems to have been deposited in the wacke. It appears to be related to a very weak chlorite slip @ 45 DTCA that forms the lower boundary of the zone although there are no other obvious alteration features present. Several weaker pyritic trains @ about 30 DTCA occur over 2m below the main mineralization.
- 344.40 345.20 Quartz-Carbonate Vein Zone The interval consists of a moderately well foliated zone @ 45- 50 DTCA, that is punctuated by 40% fractured, dull white quartz and carbonate vein material and grey silicification. Fractures are healed with grey silica and carbonate along with dark grey chlorite and bright lime green sericite. Fine py mineralization is anomalous but does not attain 0.5%. Apart from the sericite, there is no significant alteration signature.
- 353.55 354.75 Siltstone Through a leading contact on a lcm white carbonate vein @ 35 DTCA, the hole rolls into a dark to medium grey, aphanitic to very fine grained, massive siltstone unit. Part of the contact, and an irregular patch at 354.35m, are altered to olive green. The trailing 30cm are slightly coarser grained, light grey coloured, and show bedding features trending @ about 45 DTCA with a lower sharp, natural contact @ 45 DTCA.

#### 356.30 369.35 CONGLOMERATE

The contact of the wacke and conglomerate was taken at a point where a bright emerald green carbonate pebble marks the start of abundant clasts in the matrix. Typical of Timiskaming conglomerates, it is unsorted, polymictic with a variety of pebble compositions including the diagnostic red jaspers, all of which are hosted in a fine to gritty wacke matrix. Overall, the unit is mottled light to medium green grey coloured, the mottled texture resulting from the pebbly nature and moderate patchy carbonate alteration and bleaching. Ankerite veining, 0.5-1% overall, is concentrated mainly in a series of dull white stringers to 1cm at the end of the interval (40% over 20cm); the matrix is also moderately ankeritic. Susceptibilities are tightly confined between 0.21 and 0.30, while sulphides run trace. The trailing contact is sharp @ 54 DTCA.

87571 368.25 369.35 1.10 TR tr .000 14

From To (m.)

Geology

ppb

Sample	From	То	Len	Sul	AU	AU1	
NO.	(m.)	(m.)	(m.)	8	OZ/T	OZ/T	

#### 369.35 374.45 TRACHYTE

At first glance with a hand lense, the host appears to be granular textured, a mix of dark grey grains and crystals with a few bright pink grains, in a finer grained pale orange pink matrix, however, the euhedral shapes of the darker crystals/ grains implies an intrusive or extrusive origin. This is confirmed by the contacts which are irregular, but sharp and natural, generally at low angles (10- 15 DTCA) or wavey along the core axis, and which exhibit finer grained margins and alignment of crystals parallel with the contacts. Interrupting the flows from 369.70 to 371.20m, is a trachytic agglomerate lense, also with the shallow contacts, similar to the major unit below. MS values range between 0.24 and 0.30, the matrix and 0.5% white carbonate veining are ankeritic, and, mineralization is nil to trace.

#### 374.45 470.00 TRACHYTE AGGLOMERATE

The leading contact is wavey but sharp and natural @ about 15 DTCA. The trachytic agglomerate changes colour through a number of different styles and intensities of alteration throughout the interval, however, the overall features remain constant. Generally, it may be characterized by: a fragmental nature in which the clasts range from 0.5cm to 10cm+ in length, averaging 1cm in the finer agglomerate horizons and 3-4cm in the coarser ones; fragments that are either various shades of light to dark tan, pink or grey, depending on the alteration; concentrations of clasts ranging from relatively densely packed forming 60% of the rock, to widely scattered and comprising only 3-5%; and, clasts that are generally angular to subangular, with the smaller range of clasts tending towards being equant in shape while the larger ones tend to be elongated.

mentioned, various phases of alteration colour the agglomerate As differently. At the upper contact, it is light/ medium greyish pink, similar to the trachyte above. Gradually it becomes light yellow/ grey green around a fault centred at 377.50m and then darkens to medium maroon grey at 382.60m, a colour that better approximates unaltered agglomerate. From this point down hole, the colours merge imperceptibly from light/ medium pink greys to beige greys to green greys to medium/ dark grey green over intervals that range from 20-40cm around veins to several metres surrounding stronger structures. Irregardless of the degree of alteration, the matrix is moderately ankeritic while the carbonate veining, which seems to increase in quantity down hole beginning at 410.00m, averaging 3-5%, is also ankeritic. MS values seem to meander up and down within a range of 0.19 to 0.66, irregardless of the style or intensity of the alteration. Mineralization is nil to trace, becoming slightly anomalous, only in some of the structures broken out below.

377.20 378.65 Fault Zone The actual fault structures are centred at 377.50 and 378.62m while the remainder of the interval consists of well altered and deformed host rock that has been crushed and foliated @ 45- 50 DTCA along sericte and mud shears/ slips.

87572	377.20	378.65	1.45	TR	tr	.000	7
87573	396.60	397.00	.40	TR	nil	.000	nil
87574	401.25	401.90	.65	TR	tr	.000	14
87575	410.00	410.70	.70	TR	nil	.000	nil
87576	419.00	419.75	.75	TR	tr	.000	7
87577	419.75	421.25	1.50	TR	tr	.000	14
87578	421.25	422.50	1.25	TR	.001	.000	21
87579	422.50	423.35	.85	TR	tr	.000	10
87580	434.50	435.45	.95	TR	nil	.000	nil
87581	440.00	441.50	1.50	TR	tr	.000	2
87582	441.50	443.00	1.50	TR	tr	.000	7
87583	443.00	444.50	1.50	TR	tr	.000	3
87584	444.50	446.00	1.50	TR	nil	.000	nil
87585	463.50	464.40	.90	TR	tr	.000	16
87586	464.40	465.00	.60	TR	tr	.000	14

	Drill Ho	le AK-(	)3-7	P	age: 13	of 14	
Sample	From	То	Len	Sul	AU	AU1	AU2

(m)

OZ/T

ppb

07/T

NO.

(m.) (m.)

Geology

From To (m.) (m.)

> The upper fault comprises 6cm of chloritic crushing with carbonate and sericite @ about 45 DTCA, and the trailing structure, a 2cm cataclastic fault @ 56 DTCA with carbonate fragments in a chloritic matrix. Sulphides amount to trace within the interval.

- 388.49 388.50 Fault Zone This is a tight but strong chlorite fault @ 65 DTCA that has altered the agglomerate from medium maroon grey to light beigey grey green over 2.5m.
- 396.69 396.81 Fault Zone This sericite shear fault trending @ 55 DTCA, ends with a 2cm streaky pale beige grey quartz carbonate zone that contains the odd small splash of cp.
- 401.60 401.90 Fault Zone A chlorite fault @ 12 DTCA here contains streaks and slivers of dull white ankerite, pink carbonate/ barite?, dull grey quartz, and light orange altered wall rock, but only trace sulphides.
- 410.05 410.30 Quartz Vein Zone Beginniing on a tight 2mm ragged sericite fracture @ 68 DTCA, the zone comprises leading 10cm, and trailing 3cm quartz patches. Pale grey/ green/ beige alteration extends up and down hole for about 1.5m.
- 419.10 419.63 Fault Zone Although wide, the fault is relatively weak, beginning with a 1-2cm streaked, dull white/ dull pink quartz carbonate vein @ 65 DTCA, continuing to a pile of chips/ ground core at 419.43m on a quartz mud fault @ 75 DTCA, and ending on a curved sericite slip @ 70 DTCA. Internally, between structures, the medium green grey host is finely microfractured/ crushed and laced with very fine sericite and trace py and cp.
- 423.13 423.35 Quartz Vein Zone Three dull grey and dull pink quartz patches/ veins to 4cm cut the core at 60 DTCA but are not mineralized or associated with any major structure.
- 435.23 435.35 Quartz Vein Zone The interval here comprises one dull pink quartz vein with bounding mud slips @ 70 DTCA and white ankerite inclusions and fractures. Up hole, the host is pale beige pink altered over about a metre.
- 440.00 446.00 Tuff Carbonate breccia and carbonate quartz veins form about 8% of this interval. The breccia veins, which are up to 3cm in width and trend @ 30+/- DTCA, occur near the start of the interval while the carbonate quartz veins, at 444.55 and 445.95m, are 7 and 4cm wide with attitudes of 55/ 55 and 40/ 55 DTCA. Overall, the colour of the host is medium green to brown grey but near the breccia veins it lightens to a creamy beige/ brown. In both vein systems, the sulphide content is trace.

From	То	Geology								
(m.)	(m.)		No.	(m.)	(m.)	(m.)	ole	OZ/T	OZ/T	ppb

Drill Hole AK-03-7

Page: 14 of 14

- 447.00 451.35 Tuff Agglomerate Through this segment, the MS values rise slightly to a level around 0.40 and the colour changes to medium pink/ maroon grey although there is no perciptible source or reason for this change.
- 451.35 465.00 Agglomerate The clast content increases to about 20% over the interval and the colour changes back to the more typical medium/ light olive green. Clasts are various shades of medium to dark green grey with the odd green carbonate altered one, elongate, subangular and appear unsorted and aligned in the plane of a weak foliation fabric and bedding @ 40 DTCA. A pale/ weak yellow wash to the colour is caused by a network of fine sericitic microfractures.
- 463.50 465.00 Fault Zone The host is mildly to moderately crushed into a spider like/ cataclastic pattern down the core axis with fractures filled by black chlorite. The structure seems to be related to a mud lined chlorite fault @ 35 DTCA that ends the zone. Mineralization is trace. Corresponding with this fault, the colour of the host changes to medium/ dark maroon grey over the following 3m, gradually lightening to the normal medium olive grey by the end of the hole.
- 470.00 470.01 End of hole The hole ends in trachyte agglomerate as described at 451.35m.



# Work Report Summary

	Transaction No:W0480.01Recording Date:2004-SEPApproval Date:2004-OCT			St Work Done t			ROVED -FEB-20			
Approval Date:	2004-00	CT-06			to:	2003	-DEC-31			
Client(s): 185 <sup>-</sup>	109 Q	UEENSTON I	MINING INC							
Survey Type(s):										
ourvey rype(s).		ASSAY		PDRILL						
Work Report De	etails:									
Claim#	Perform	Perform Approve	Applied	Applied Approve	Ass	sign	Assign Approve	Reserve	Reserve Approve	Due Date
G 8000409	\$152,654	\$152,654	\$0	\$0		\$0	0	\$152,654	\$152,654	
-	\$152,654	\$152,654	\$0	\$0		\$0	\$0	\$152,654	\$152,654	
External Credits	s:	\$0								
Reserve:	\$1:	52,654 Res	erve of Worl	k Report#: W0	480.01	1413				
	\$1	52,654 Tota	al Remaining	I						

Status of claim is based on information currently on record.



42A01NE2063 2.28405 TECK

Ministry of Northern Development and Mines

Date: 2004-OCT-07

Ministère du Développement du Nord et des Mines



GEOSCIENCE ASSESSMENT OFFICE 933 RAMSEY LAKE ROAD, 6th FLOOR SUDBURY, ONTARIO P3E 6B5

QUEENSTON MINING INC. 1116-111 RICHMOND STREET WEST TORONTO, ONTARIO M5H 2G4 CANADA Tel: (888) 415-9845 Fax:(877) 670-1555

Submission Number: 2.28405 Transaction Number(s): W0480.01413

Dear Sir or Madam

# Subject: Approval of Assessment Work

We have approved your Assessment Work Submission with the above noted Transaction Number(s). The attached Work Report Summary indicates the results of the approval.

At the discretion of the Ministry, the assessment work performed on the mining lands noted in this work report may be subject to inspection and/or investigation at any time.

If you have any question regarding this correspondence, please contact STEVEN BENETEAU by email at steve.beneteau@ndm.gov.on.ca or by phone at (705) 670-5855.

Yours Sincerely,

Rom C Gashingh.

Ron C. Gashinski Senior Manager, Mining Lands Section

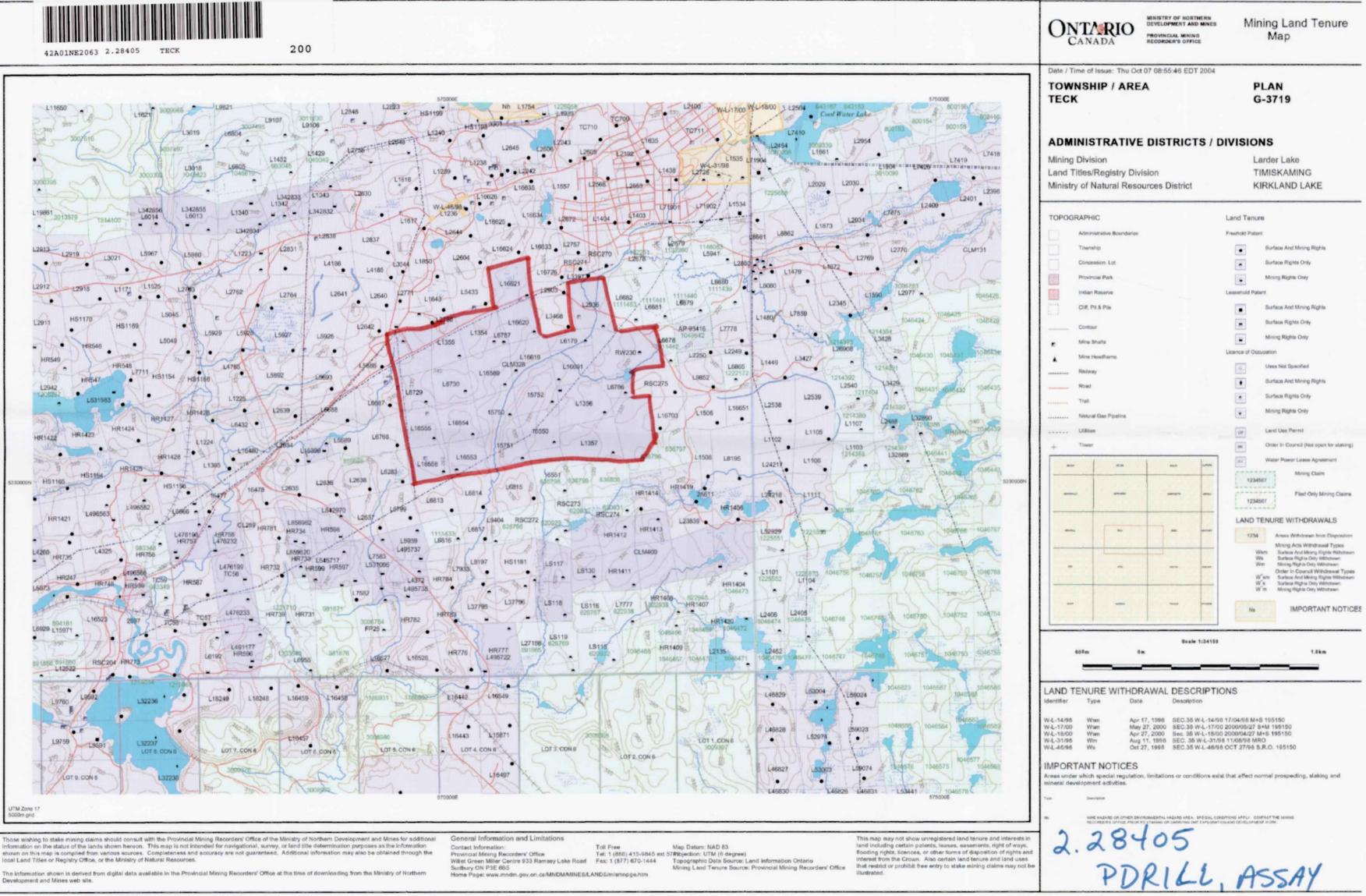
Cc: Resident Geologist

Queenston Mining Inc. (Claim Holder)

Wayne Russell Benham (Agent) Assessment File Library

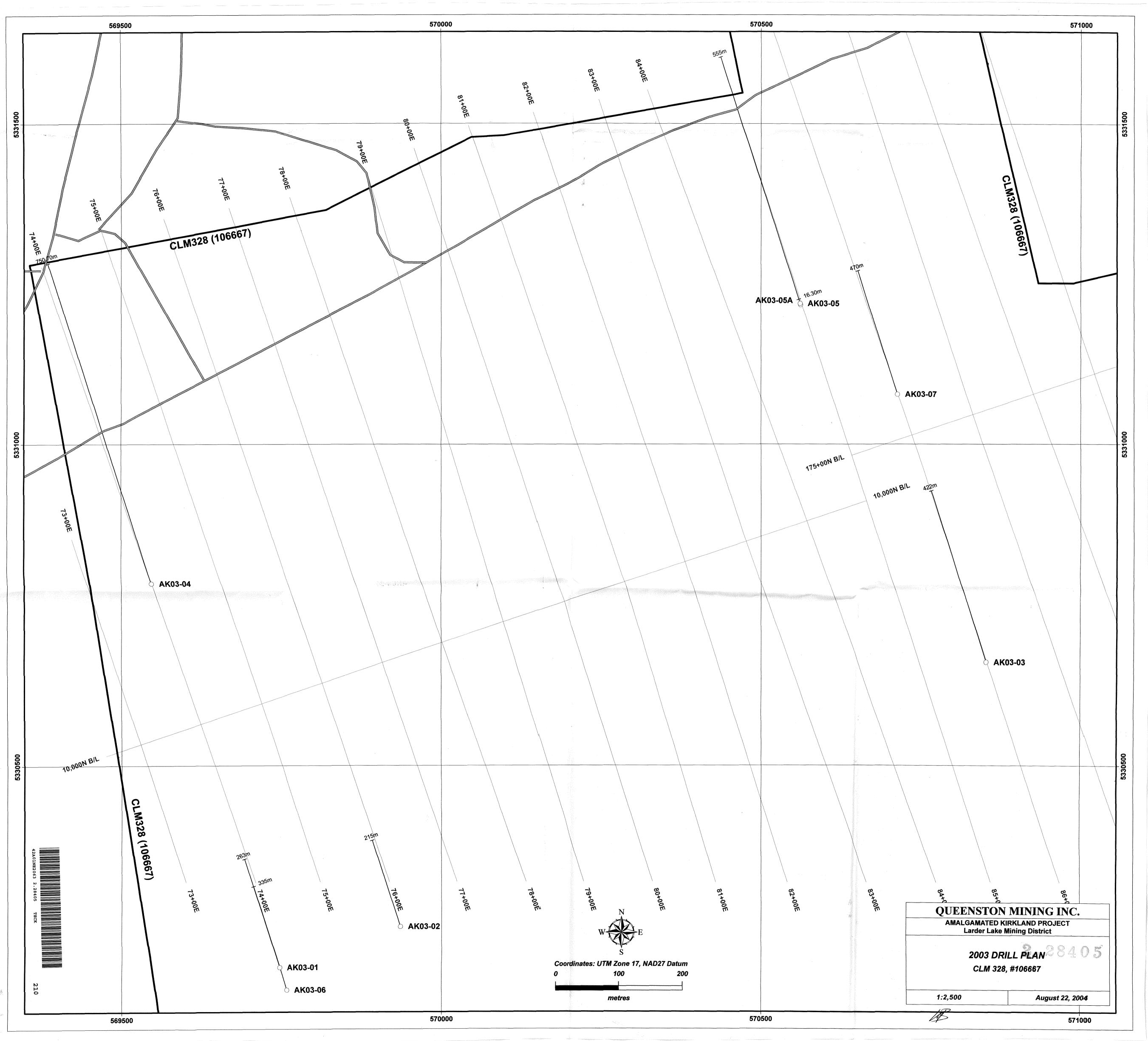
Queenston Mining Inc. (Assessment Office)

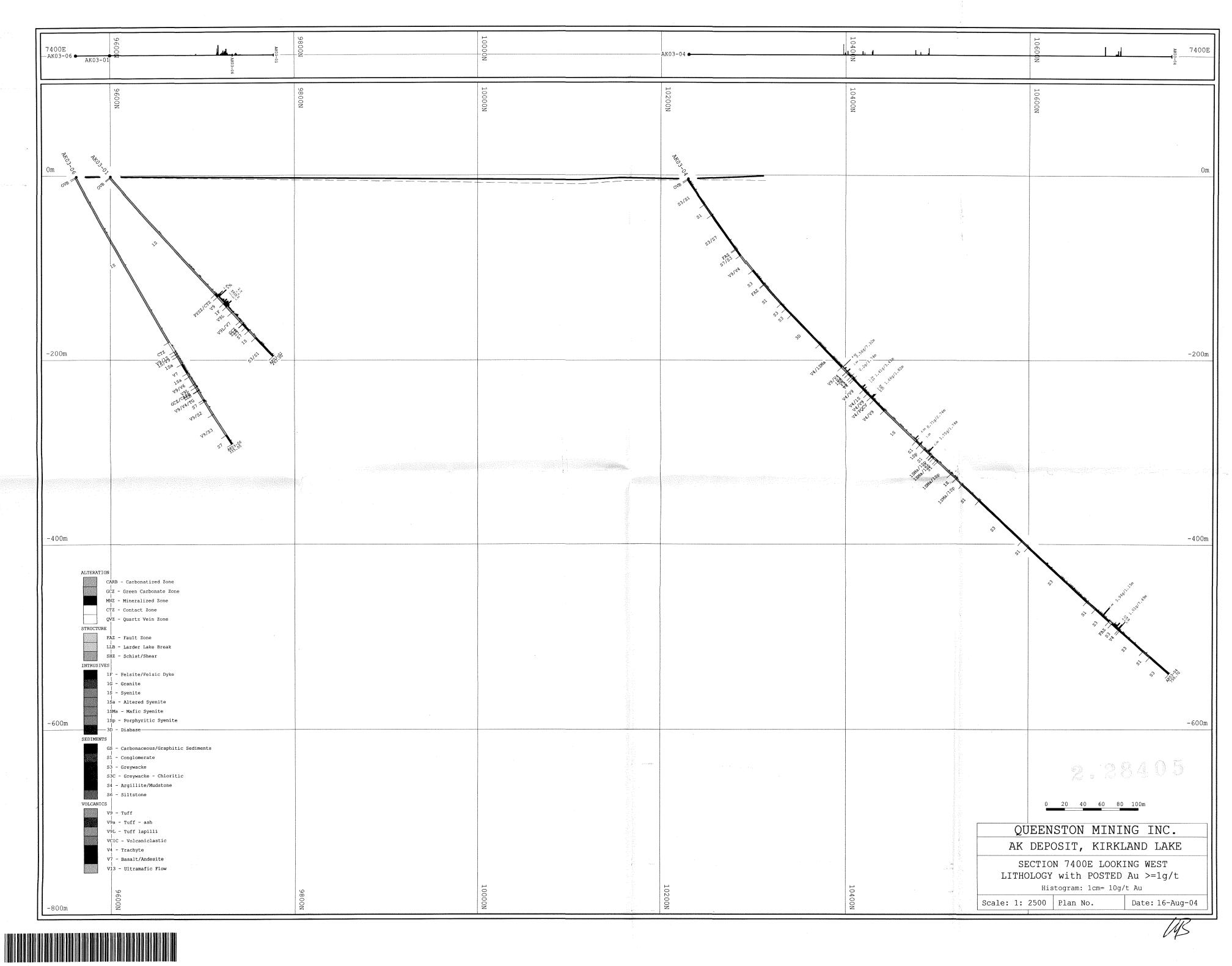




nformation on the status of the lands shown hereon. This map is not intended for navigational, survey, or land title def

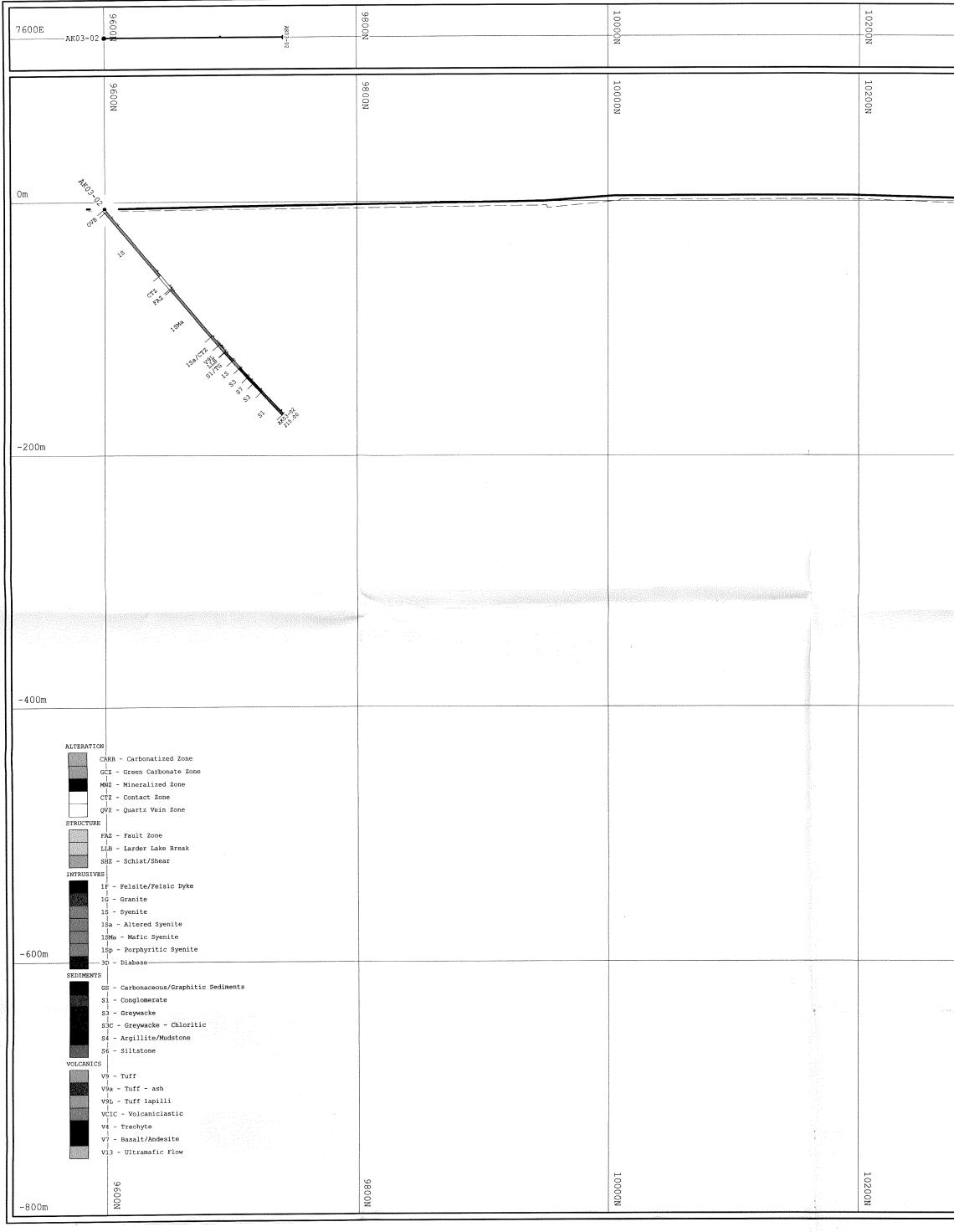
The information shown is derived from digital data available in the Provincial Mining Recorders' Office at the time of downloading from the Ministry of Northern





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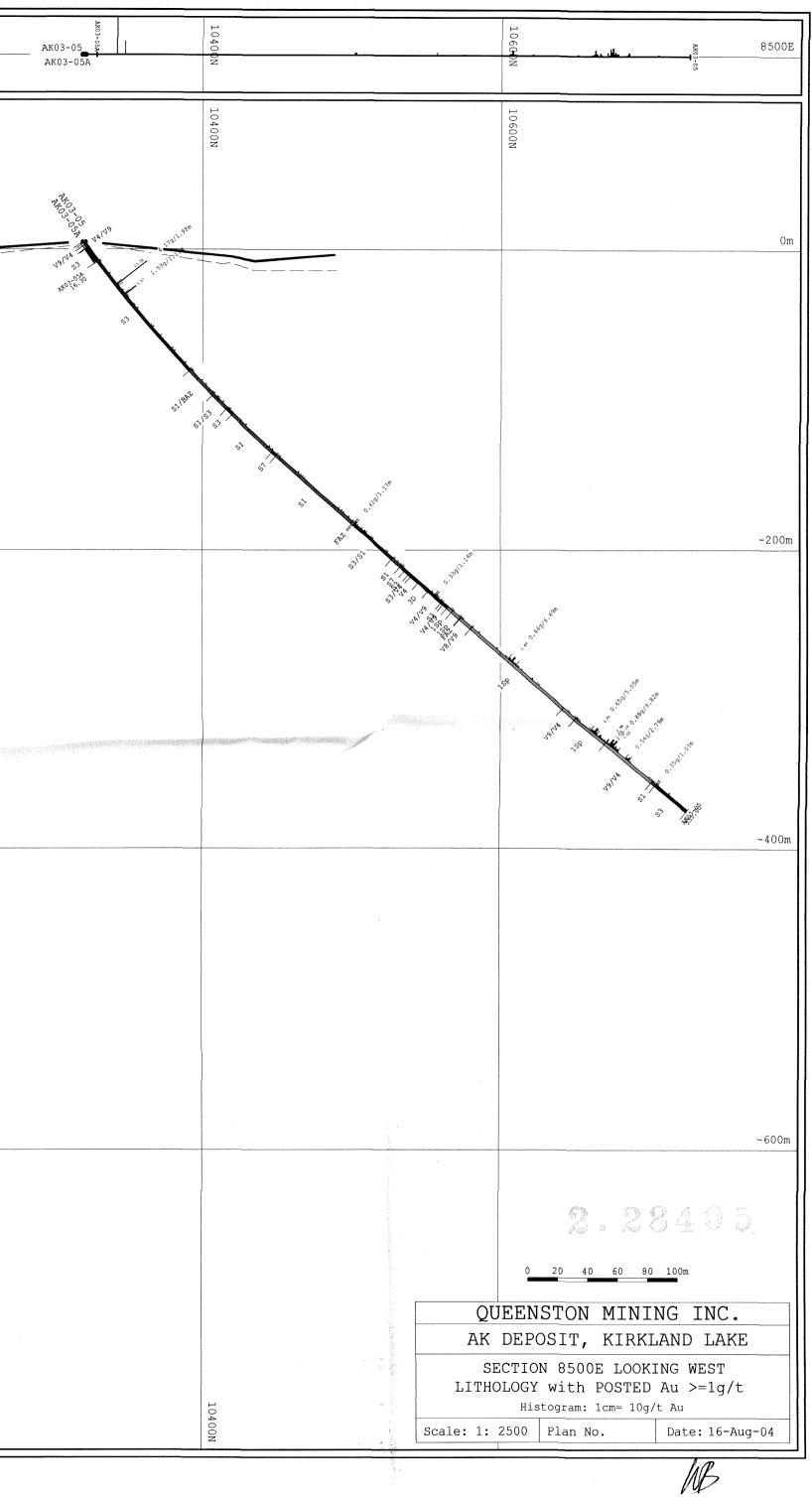


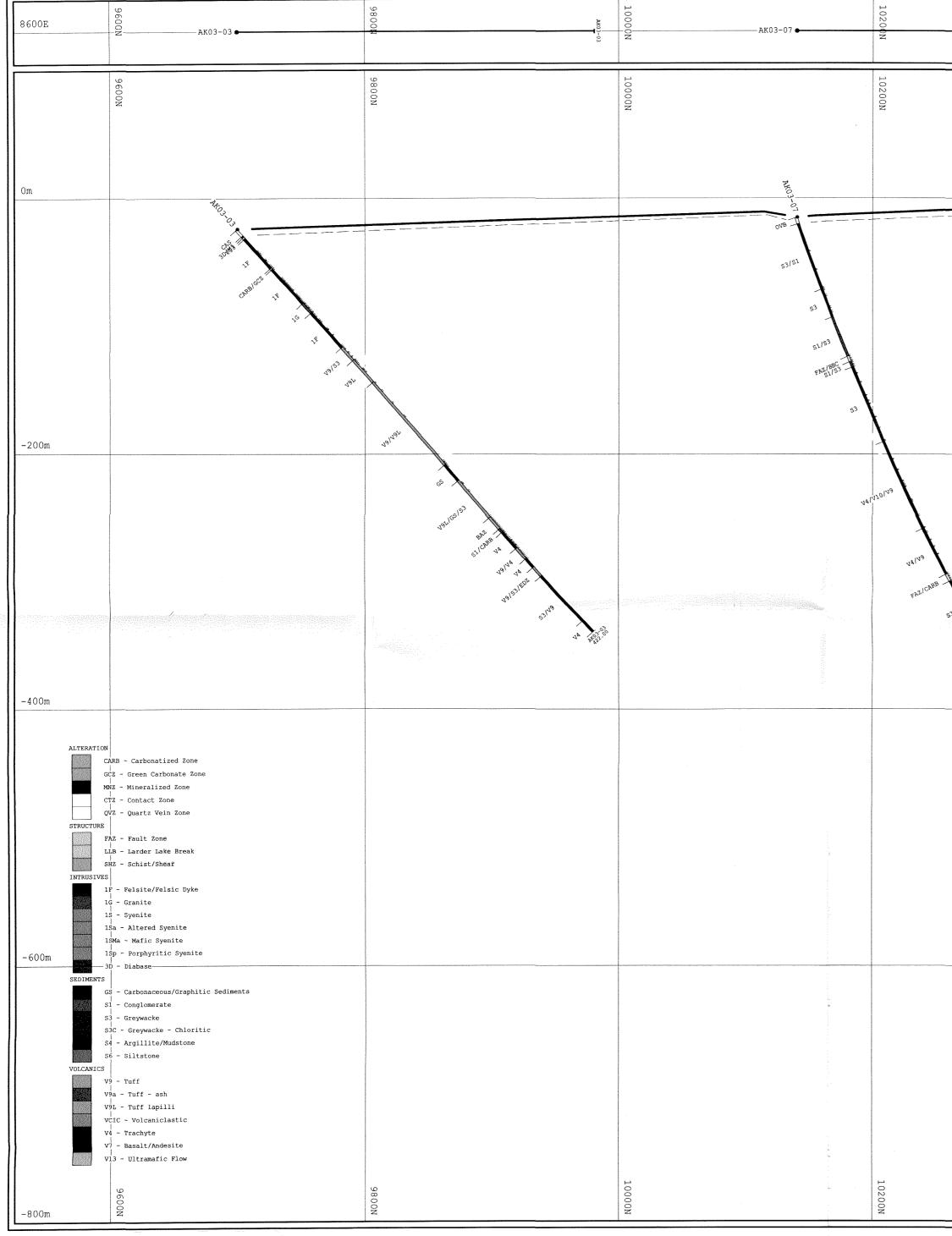


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		Histogram: 1cm= 10g/t	
10400N	Scale: 1:	T	Date: 16-Aug-04

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	sense visite and the sense of the			
-400m				
ALT	ERATION CARB - Carbonatized Zone			
	GCZ - Green Carbonate Zone NNZ - Mineralized Zone CTZ - Contact Zone			
STR	QVZ - Quartz Vein Zone UCTURE FAZ - Fault Zone LB - Larder Lake Break			
INT	RUSIVES 1F - Felsite/Felsic Dyke 1G - Granite			
	15 - Syenite 15a - Altered Syenite 15Ma - Mafic Syenite			
- 600m sed	ISp - Porphyritic Sygnite JD - Diabase IMENTS   GS - Carbonaceous/Graphitic Sediments		1	
	SI - Conglomerate S3 - Greywacke S3C - Greywacke - Chloritic			
VOL	S4 - Argillite/Mudstone S6 - Siltstone CANICS V9 - Tuff			
	V9a - Tuff - ash V9L - Tuff lapilli VCIC - Volcaniclastic V4 - Trachyte			
	V4 - Trachyte V7 - Basalt/Andesite V13 - Ultramafic Flow			
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	· · · · · · · · · · · · · · · · · · ·	AK	2.28405 <u>2.28405</u> <u>2.40 60 80 100m</u> <u>DEENSTON MINING INC.</u> <u>DEPOSIT, KIRKLAND LAKE</u> <u>ECTION 8600E LOOKING WEST</u> <u>DLOCX with POSTED Au &gt;=1c/t</u>
	10400N	Scale: 1:	DLOGY with POSTED Au >=1g/t Histogram: 1cm= 10g/t Au 2500 Plan No. Date: 16-Aug-04