60001340

Mining District File Summary Sheet

DISTRICT	Rosebud
DIST_NO	4010
COUNTY If different from written on document	Pershing
TITLE If not obvious	Rosebud Drill Hole File - Hole No. RL-109
AUTHOR	N. Brewer; R. Grondin; K. Tullar
DATE OF DOC(S)	1990
MULTI_DIST Y / (N?) Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Rosebud Project; Coates Drilling; Lac Minerals (USA), Inc
COMMODITY If not obvious	gold silver
NOTES	Drill log; geology; assay; total depth 1247' handwritten notes 42p.

Keep docs at about 250 pages if no oversized maps attached
(for every 1 oversized page (>11x17) with text reduce
the amount of pages by ~25)

	Initials	Date
SS:	DD	5/19/08
DB:	mah	
SCANNED:		

Revised: 1/22/08

Drill Log RL-109
Rosebud

6000 1340 4010

60001340

LAC MINERALS (U.S.A.) INC.

DRILL LOG SUMMARY SHEET

PROJECT Rosebud

HOLE NUMBER RL-109 TOTAL DEPTH 1247 LOGGED BY CMW

Date started 8-28-90

Date completed 9-07-90 PM

Initial bearing S51E

Initial inclination -60°

Elevation 5296.7

Collar coordinates:

N 2204609

E 481989

Contractor: Coates

Drill Type: Long Year 44

Hole Size: HQM

Drilling Conditions:

Footage: Wet / Dry

Comments:

DOWN HOLE SURVEY INFORMATION

FROM	TO	SURVEY POINT	INCLI-NATION	BEARING	X (Northing)	Y (Easting)	Z (Elevation)
0	53		-60	S51E			
53	207	107	-60.5	S54E			
207	407	307	-62	S61E			
407	612	507	-63	S59E			
612	817	717	-63.5	S61E			
817	1012	917	-64	S63E			
1012	1177	1107	-63	S66E			
1177	1247	1247	-64	S64E			

Logged 9/90 CMW

HOLE # 109

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG
	0	None	Thin fracts w/ FeOx	Wk FeOx on thin fract's	
	<50				
10					
	100				
20					
	110				
30					
	100				
	87				
40					
	100				
50					
	100				
60					
	160		Thin Fracts w/ FeOx		

DESCRIPTION

0-5 NO RECOVERY

5-74 (to tuff bxa) (CIC)

lapilli lithic tuff - Chocolate; Irregular angular clasts ranging from < 1cm to ~ 4 cm of chocolate in identical chocolate Tuff matrix; Generally a leaht grey color (wkly bleached) w/ small (<1mm) black speckles (<2%) of mafic phenos - biotite & hornblende(?) & white argillized phenos (1-2mm, ~4%) prob. after plag or sanidine

Weak thin (<½mm) fractures w/ FeOx stain, (density varies from 2 per inch to 1 in 6 inches) fractures have variable orientation but appear to favor ~5-10°, ~45° & 65-80° from core axis

overall weakly argillized, scratchable but not soft

rare 1" zones w/ limonite filled casts - prob after mafic phenos

No bedding or foliation visible. Poor/no sorting.

Minor zones w/ ~2 mm fractures filled w/ FeOx & small barite xtls at ~40-41' & 49-50'.

The clastic texture is subdued - not really obvious til you wet core.

ASSAYS: Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
5'-12				.002	L
12-18				.001	
18-22				L	
22-27				L	
27-31				L	
31-35				L	
35-41				.001	
41-47				L	
47-52					
52-57					
57-62					
62-67					
67-72					

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERAL-IZATION	GRAPHIC LOG
74	100	None	Thin fracts w/ FeOx ↓	WK FeOx on thin fracts	
80	103				
90	100				
100	99				
110	100				
120	99		fract 45°	f.gr pyr on fracts	
130	100			f.gr FeOx on fracts	
140	100			fault zone ?	

DESCRIPTION

74 – 120

Same unit as above, but increased alt'n. Chocolate lithic lapilli tuff to tuff bxa, <1cm to 6cm clasts in identical matrix. Moderately argillized (a little more easily scratched than above), ~ 1/2 of mafic phenos destroyed, and locally can see FeOx casts after mafic phenos, ~ 5% 2mm white argillized (plag or sanidine?) phenos. Thin fractures w/ limonite as above, but also see few wider fractures w/ FeOx and barite, (1mm to >6cm wide zones) FeOx-barite zones at: 100-101', ~109', ~111-112', ~114',

Overall mod argillized

No bedding or fol'n

Again, clastic texture is subdued since clasts & matrix are same composition.

120 – 125 f.gr Chocolate tuff w/ minor 1-3cm lithics of same composition. <2% biotite phenos (<1mm), <5% white argillized phenos (1-3mm) Overall weakly bleached/argillized. Unoxidized – f.gr. pyrite on fractures (~45° to core axis) & few pods of pyr.

125 – 128 Same as above, but oxidized

128 – 136 Transition zone? – possibly tectonic breccia? NO; clast supported bxa – various types of clasts – some look like chocolate, some are f.gr. green, size ranges from <1mm to ~3cm, angular to subrounded, some argillized, some silicified. Cut by fine limonite filled fractures <1/2mm wide at various orientations

ASSAYS

Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
72-77				<.001	<.01
77-82				<.001	<.01
82-87				<.001	<.01
87-92				.001	<.01
92-97				.001	<.01
97-102				<.001	<.01
102-107				.001	<.01
107-112				.002	<.01
112-117				<.001	.11
117-122				<.001	.10
122-127				.001	.10
127-132				<.001	<.01
132-137				<.001	<.01
137-142				<.001	<.01

HOLE # 109

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERAL-IZATION	GRAPHIC LOG	DESCRIPTION	ASSAYS: Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
	100	None	thin fracts	FeOx on thin fracts		[137-152] Lithic Lapilli tuff: Matrix supported, angular clasts of variable composition, 1mm to 4cm size, color white or blue-green; matrix is a purplish-brown color. Rock is overall moderately argillized - easily scratched. Rare thin fractures w/ limonite. ~1/2 of clasts are of similar comp to Chocolate tuff, others are blue-green f.gr tuff. (Tcp) c2c	142-147				<	<
150	100						147-152				.001	<
				dissem py in some clasts & minor py veining		[152-171] Lithic Lapilli Tuff/tuff bxa: Clast supported; angular clasts of variable comp. some are white to pale grey, some are speckled blue-green (similar to chocolate), 5mm to 4cm size; Blue green clasts generally contain f.gr. dissem. pyrite (some euhedral cubes). Cut by some pyr. veinlets: ~ 1 every 4", 1/4 - 1 mm wide at ~ 45° & 90° to core axis. Oxidized zone from 157'-159': 1/2 cm fractures w/ limonite & barite ~60° to core axis. Overall wk-mod argillization, Overall splotchy blue green & pale purple grey coloring. Mostly clasts, not much matrix (Tcp) c2c	152-157				<	<
160	99		py veinlets 45 & 90°				157-162				.004	<
							162-167				.001	<
170	100					[171-182] Same rock as above but w/ more FeOx staining & veinlets after py & zone from 176-181 w/ abt FeOx stained drusy qtz cavities. Vugsy areas range from 1cm to ~3cm wide, no preferred orientation, & cover ~ 15% of the core in the 5' zone. Overall core is weakly arg. & silicified. c2c	167-172				.004	<
				FeOx on drusy qtz			172-177				.002	<
180	94		pyr veinlets at 60° & 30°	pyr veinlets & dissem py		[182-228] Lithic lapilli tuff → tuff bxa (Tcp) (c2c) Generally clast supported, unsorted - clasts vary from 2mm to some large chunks > 4cm, subangular, 2 types of clasts: lt purplish grey w/ < 5% alt'd mafic phenos - looks like Chocolate, and blue green clasts which are sometimes banded & ~ 1/3 of the time contain abt (10%) dissem. pyr. Overall rock has splotchy blue-green & lt grey appearance & wk-mod argillized. Wk-mod pyr/marcasite veining; 1-2mm wide veinlets at 55-60° from core axis, & minor set at 30° to core axis. Also wk crackle bx'n / fracturing w/ FeOx or pyr. Matrix is a med purplish grey color. Few 2mm wide Kaolinite veinlets at 221.5-222.5 ~60° to core axis. Some of dissem pyr shows euhedral form - cubes ± pyrgythohedrons. (182-204 is little more argillized / bleached than 204-228) No Bedding or fol'n	177-182				.008	<
							182-187				<	<
190	100						187-192				<	<
							192-197				<	<
200	102						197-202				.002	<
							202-207				<	<
210	100						207-212				.002	<

HOLE # 109

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG
		None		pyr veinlets & diss pyr	
220	99				
230	102		fault zone ?	Minor pods pyr & veins Mc	
			Weak thin fracts	None	
240	99				
250	102				
260	100			wk pyr/marc stringers & veinlets	
270	100				
280	102				

DESCRIPTION

228 - 232 Brecciated zone; 2ndary bx'n of lithic lapilli tuff/tuff bxa (Tcp-C2c); Matrix supported - matrix is lt grey-white & is clayey. Clasts are 2mm to 2cm and are subrounded to subangular, 80% are purplish-brown w/ <3% tiny dark phenos, these clasts not easily scratched - may be wkly silic?, 20% are blue-green - these are softer. Cut by 1-3 mm wide Kaolinite veinlets at 45°-60° from core axis & in matrix between clasts, (~ 1 in 2") Minor pods & veinlets of sheaflike marcasite.

232 - 262 Lithic lapilli tuff / tuff bxa (Tcp - C2c) Clast supported, most clasts between 1/2 cm - 3 cm. Clasts are subangular, 60% are lt grey 'chocolate' clasts, 40% are blue green slightly softer clasts, - 1/5 of which contain abt dissem pyr. Overall rock has splotchy lt grey, pink-grey & blue green appearance. Overall wk-mod arg / bleaching Matrix is pink-brown color. No veining, few wk thin fractures w/ FeOx. No bedding or fol'n

262 - 263 Matrix supported bxa - can't tell if depositional or tectonic (prob. depositional) Clasts 2mm to 2cm, pale grey to white & are mod-str arg - soft. Matrix is red-brown color, f.gr & a little harder No veining or bedding

263 - 280 Lithic lapilli tuff / tuff bxa (Tcp-C2c) w/ wk. 2ndary bx'n Clast supported; subangular, 60% grey 'chocolate' clasts, 40% blue-green clasts, 1/5 of which contain dissem pyr. Matrix is med-pale purplish grey. Overall wk-mod arg / bleaching. Abt thin small fractures to wk crackle bx'n. Wk 1-2mm wide pyr & marcasite stringers & veinlets; various orientations, 60-80° from core axis most common. No bedding or fol'n. Rare kaolinite veinlets.

ASSAYS

Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
212-217				.003	<
217-222				.002	<
222-227				.002	<
227-232				.005	.13
232-237				<	<
237-242				<	<
242-247				<	.10
247-252				<	<
252-257				<	<
257-262				<	.12
262-267				<	<
267-272				.001	<
272-277				<	<
277-282				<	<

HOLE # RL-109

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	DESCRIPTION	ASSAYS: Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
280		None	weak fine fract w/ FeOx	V.wk FeOx		**280-290** Transition zone between alt'n type above 280 & below 290. Lithic lapilli tuff / tuff bxa (C2C) Clasts - 1/2 cm to > 6 cm 1/2 are pale green to lt grey 'chocolate' w/ ~3% dark phenos, 1/2 are splotchy blue green & red-brown. It appears that these clasts are altering (dueteric?) from original red-brown color to this blue-green color. Overall rock is weakly argillized/bleached. Cut by very fine fractures w/ FeOx (weak). [Think that green/red brown clasts might have been pumice]	282' 287				✓	✓
290	95			None		**290-321** Lithic lapilli tuff & tuff bxa (Tcp-C2C), Overall weakly bleached/arg. 80% of clasts are chocolate tuff - grey to brown f.gr matrix w/ ~2% biotite & ~5% sanidine or plag phenos, some clasts > 1' - overall very poor sorting. Other 20% of clasts are red-brown w/ minor green splotches - may have been pumice? Clasts are subangular to sub rounded. Abt 2-5 mm calcite & Kaolinite veinlets between 299' - 303', at ~45° to core axis. Overall blotchy med-dk grey, red-brown, spots of green coloring. Green is mostly small spots & in small fracts - incipient alt'n to chlorite or glauconite?						
300	100		Calcite at 45°									
310	98											
320	97					**321-352** Same rock as above (Tcp-C2C) but loose green coloring. Fresh lithic lapilli tuff. tuff breccia (Tcp) Overall red-brown (brick) color. Angular clasts 2mm - > 6 cm ~60% are clasts of 'chocolate tuff' - grey to brown w/ biotite & sanidine phenos, ~ ~40% are deep red-brown clasts - think these might have been blobs of pumice? Rare 1-2 mm calcite veinlets, no orientation. Local thin, weak FeOx on fractures. No bedding, poorly sorted						
330	99											
340	98					Looking back from this relatively fresh rock at 321-352 uphole, I can see this is all the same original rock - Tcp; the 290-321 zone has 'green' (glauconite?, chlorite?) alt'n & 137-290 is a more altered & bleached version of the same. I cannot tell if this is hydrothermal or dueteric for sure, but at least the 'green' alt'n I believe to be dueteric/vapor phase.						
350	97											

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERAL-IZATION	GRAPHIC LOG	DESCRIPTION	ASSAYS: Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
		Bedding 30°	None	None		Contact between Tcp & Bud at 352'; contact is conformable, & is at ~32° to core axis.						
360	100					352-370 'Bud', Upper Bud f. gr tuff to lapilli tuff. Overall dk pistachio green color. Bedded, mod-well sorted. Generally fine grained w/ 6" coarser beds. Bedding at ~30° to core axis. 'Wispy' texture from 354'-360'. Clasts are grey or white in coarser beds, avg. from 1mm to ~1cm. No veining. Fresh.						
370	99					370-405 'Bud Breccia'? (Upper Bud) Lithic lapilli tuff. Varies from clast supported to barely matrix supported. Overall dk pistachio green & med grey color. Clasts are angular & avg ~1cm, range 2mm → 3cm. Poor-mod sorting. Clasts are f. gr purplish grey or green, ~5% show banding. Few calcite veinlets 2mm →>1cm between 392-394' at 30°-50° to core axis.						
380	102	?										
390	92	?	Calcite			405-431 'Bud Breccia'? (Upper Bud) Lithic lapilli tuff. Darker color & more consistent clast size than above. 'Clast' to barely matrix supported. Clast size avg 1/2 to 1 1/2 cm. Well sorted, well bedded - bedding at 45° to core axis. Overall appearance dk grey-green w/ white splotches. (1/2 of clasts bleached) Clasts subangular, others dark & wavy - probably stretched pumice. Overall appears to be fairly fresh. No veining.						
400	100	?										
410	101	Bedding ~45°										
420	102											

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERAL-IZATION	GRAPHIC LOG
		Bedding 45°	None	None	
	100				
430			fract	FeOx on fract	
			None	None	
	98	None		VWK FeOx on fract	
440					
	100				
450					
	100				
460					
	100				
470					
	95				
480			pyr 50°	minor pyr veinlets	
	100		green		
	100		serp?		
490					

DESCRIPTION

431 - 433 finer-grained, dark, bedded lapilli tuff, bedding at 45° to core axis, grades upward into coarser lapilli tuff. Cut by couple fractures at 30° to c.a., opposite dip, w/ brick red hematite stain.

433 - 437 Transition zone: Appears to be erosion rip up zone – Bedded (45° to c.a.) f.gr. lt. green tuff w/ bedded layers of angular dark grey clasts 1/2 cm to 3 cm – appear to be ripped up or erosional fragments of material below.

437 - 464 ¿ WHAT UNIT IS THIS? → Tmb Similar appearance to Chocolate tuff (?) Med-grey porphyritic tuff or flow? Groundmass is very f.gr., no texture, competent, hard (can be scratched by metal); Contains <2% small <1mm dark phenos prob. biotite, & 3-5% white 1-3 mm phenos plag ± sanidine. Fairly fresh. (± rare qtz phenos??)
Top 6' cut by network of thin fractures at ~15°, 50° & 80° to c.a.
Rare thin calcite veinlets at 45° & ~80° to c.a.

? What unit is this – have green bedded lapilli tuff above (Bud?) & downhole
? at ~625 have green 'Bud' for sure... Is this an interbed of tuff or
? is it Chocolate or what?

464 - 480 (Tmb) same unit as above but bleached / alt'd / Propylitized. Bleached to pale grey-green color, biotite destroyed → chlorite, plag → calcite (Propylitically alt.) Competent, no bedding, Occasional wk thin fractures

480 - 506 (Tmb) same unit as above but increase alt'n (Prop / Arg?)
Plag alt to Kaolinite or locally to dk green talcy-feel mineral (serp., epidote, alunite?)
Biotite alt to dk green ¿ chlorite? or replaced by pyr.
Overall very pale grey-green w/ pale flesh colored splothes.
Minor pyr veinlets (1mm wide) at ~50° to c.a, Green talcy waxy veinlets at various orientations

ASSAYS: Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
475.5-480				<	<
480-487				.001	<
487-492				<	<

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	DESCRIPTION
500	100	NONE	Py at 45° qtz alunite 45° & random	pyr veinlets & pyr repl plag phenos		506-539 (Tmb) same unit as above, but increased alt'n & veining. (Porphyritic tuff?) Overall coloring varies from pale greenish-grey to pale pinkish grey; f.gr groundmass is competent, fairly hard (but scratchable). Plag alt to Kaolinite & partially to totally replaced by f.gr pyr – so see ~3% ?2-5 mm blebs of pyr throughout. Biotite → dk green chlorite? &/or pyr. Many (1-2 per inch) thin qtz (<1/2-1mm) & abt (1 every 4") pyr ± qtz veinlets (1/2mm-2mm wide), preferred orientation at ~40° to c.a. Also numerous (1-2 per inch) veinlets of very talcy feel green material (can't scratch w/ fingernail, can w/ knife – could be colored alunite??), 1/4mm-2mm wide, various orientations. Few drusy qtz vugs in last 5 feet. No bedding.
510	98					
	98					
520	100					
530	100					
540	100		stockw	py repl plag & w/qtz in veinlets		539-546 Hydrothermal bxa Zone?; Same protolith as above (Tmb) but broken up into 1-5cm angular clasts w/ grey qtz matrix/veining. Clasts themselves are veined to crackle-bx'd by thin grey qtz veinlets. ↖ locally looks like stockwork. Overall rock has pale grey-green to pale peach/flesh color. Abundant 1/cm to 3cm drusy qtz cavities (~1 every 3-4 inches) ~1/2 of Kaolinitized plag is replaced by py & some qtz veinlets contain py. Minor veinlets of green material (Kaol?, alunite?) waxy, talcy feel.
550	100			pyr repl plag & minor py veinlets		
560	85					

ASSAYS: Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
492-497		<		.001	<
497-502				<	
502-507				.004	
507-511				.008	
511-517				.001	
517-522	.001			.001	
522-527				.004	.15
527-532				.003	.13
532-537				.004	<
537-542				.003	<
542-547				.001	<
547-552				.003	<
552-557				.003	<
557-565				.05	.14

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	DESCRIPTION
560	116		Fine qtz & green min.	Pyr repl plag, minor dissem & veinlets		**546-598** similar to 506→539 interval; alt. porphyritic tuff/flow. (Tmb) Overall pale green-grey to pink-grey or flesh color. Groundmass f.gr. & competant. Contains ~3-5% plag phenos alt to kaolinite & mostly replaced by pyrite. Small biotite phenos totally alt to green ¿chlorite? Thin (<1/4 mm) grey qtz filled fractures throughout (1 to 3/inch) at various orientations; 75-80° from c.a., lessor at 45° & ~10°. Also abt (1 in 4") talcy-feeling green mineral veinlets (alunite?), at 80°, 45° to c.a. Some 1/2-2 mm wide py veinlets at 80° & 45° to c.a. (1 in 6" to 1'). Also few splotches of dissem euhedral py. Few drusy qtz cavities. No bedding
570	97					
580	100					
590	95					
600	>100		Kaol + Mc on fracts	Mc on fract & minor pyr veinl.		**598-619.5** alt'd porphyritic tuff/flow (same protolith as above) (Tmb) Generally a pale grey-green color but w/ 2" to 6" patches of med blue-green coloring. Plag phenos alt to kaolinite ± chlorite or epidote, ~20% repl. by pyr. Biotite → ¿chlorite? Abt white kaolinite veinlets (~1 every 2"-4") (1-2 mm wide) predomin. at 45° to core axis, lessor set ~ vertical. Most kaolinite fractures have radial clusters of marcasite growing on fracture plane. Also some (1 in 6") thin (<1mm) qtz & pyr veinlets, ~at 45° to c.a.
610	95					
620	>100		Fine fract	None		**619.5 ~ 624** ¿ Possible fault zone? Argillized chaotic bxa zone between f.gr. tuff above & green Bud Bxa below. Can't tell if bxa is depositional or tectonic. Matrix supported. Matrix is green & clayey. Clasts are pale tan, angular, avg 2mm - 1cm. Few 1/2"-1" drusy qtz vugs.
630						

ASSAYS

Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
565'-570				.003	<
570'-575				.001	<
575-580				.002	<
580-585.5				.001	.1
585.5-590.5				<	<
590.5-595.5				.001	<
595.5'-601				.049	<
601-606				.007	.17
606-611				.012	.24
611-616				.019	.18
616-619.2				.011	<
619.2-624				.003	.12
624-629				<	<

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Veins/Faults	MINERALIZATION	GRAPHIC LOG
		45°	Calc veins	None	
	95	Wispy pumice at 35°			
640			Rare Calc		
	100				
650		Crude Bedding at ~35°	None		
	95			Diss Py	
660		Wisps at 10-30°	None	None	
	>100				
670			Minor Py	FEW Py veinlets & repl clasts	
	100				
680	>100				
			None	None	
690	>100				
	100		Minor Py	FEW Py veinlets	
700					

DESCRIPTION

624 – 633 DK green lithic lapilli tuff – 'Bud Bxa' Matrix supported, crude sorting & bedding at ~40-45° to c.a. Finer beds avg clast size 1-2mm, coarser beds avg clast 1-2cm. Clasts are angular, pale green or tan. Matrix is dk green w/ faint wispy text. Minor calcite veining at ~50-60° to c.a. Overall fairly fresh

633 – 647 Med green lithic lapilli tuff / Bud Bxa w/ wispy texture Matrix supported, Only contains ~ 15-30% lithics – sub angular also med green color, avg ~ 1/2 – 1 cm size. Matrix contains abt slightly darker green wisps – probably pumice. 'Wisps' prob along bedding, at ~ 35° to core axis. 1/2"-1" calcite veins at 640' & 645' at 80° to core axis

647 – 658 Med-green lithic lapilli tuff / Bud Bxa, more lithic clasts than above Borders between clast & matrix supported, contains 50-70% lithics – sub angular, mod. – sorted 2mm – 1cm avg size, pale to med green. Bedding at ~ 35° to core axis. Lower 2' contain 2-3% dissem. py.

658 – 703 Med-green lithic lapilli tuff / Bud Bxa w/ wispy texture (similar to 633-647) Matrix supported, contains ~ 20 – 35% lithic clasts – angular, lt green to white color (Most of clasts are argillized), avg 1/2 – 1cm size, (trace 3cm) Matrix is grey-green & contains abt blue-green 2-3cm wisps (prob. pumice) (~ 20 – 30% of rock is wisps of pumice (?)) Wisps oriented at 10°-30° from c.a. Minor spots FeOx above 673' 673' ~ 685' see some 2mm stringers/veinlets of py (at 45° & 80°), & 5% of clasts partly replaced by dissem py. Also ~1/2cm wide drusy qtz vugs at 671', 675', 677-678. 1/2" calcite vein at 674'. 4" drusy qtz vug w/ euhedral blades marcasite at 698 Overall spotted green & white appearance.

Also 3mm wide py veinlets between 694 & 703 (~11 per foot) 40° to c.a. Calcite veinlets ~3mm wide at 694 & 703.

ASSAYS

Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
654.5'-660				.001	.15
660-665				.024	2
665-670				<	.24
670-675				.007	.12
675-681				.007	<
681-687				.005	<
687-692				.002	<
692-697				.002	<
697-703.3				.020	.18

HOLE # RL 109

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG
		Wisps at 10-30°	None	None	
	98			py	
710				None	
	100				
720			Clay Calc @ 30°	py	
	99			calc & clay	
730		± wisps at 20°	None	None	
	96				
740					
	96				
750					
		banding at 20-30° to c.a			
	>100				
760					
	>100				
	99				
770					

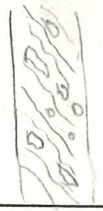
DESCRIPTION

703-706 Silicified zone – probably a fault. Streaky tan, grey & green. Strongly silicified – harder than metal. Now is 'chert-like'. Few pods of dissem py. 4mm Calcite bands 30° to c.a. above zone at 703, 705-706 is weakly (tectonic?) bx'd lithic lapilli tuff.

706-730 Same as 658-703 (overall ~~little~~ bit paler, but clasts less bleached) Med-green lithic lapilli tuff / Bud Bxa. Matrix supported. Lithic clasts comprise 15-30% ! avg 1/2-1 cm, sub angular, med to lt green. Matrix is grey-green to tan & contains abt slightly darker blue green 2-4cm long 'wisps' (of pumice ?) Wisps comprise 20-30% of rock. Few veinlets of py (~4mm wide) at 708, 725, & py + calcite at 721' (at ~45° to c.a) Shearing w/ 1cm zone of clay & 2cm zone of calc veining (30° to c.a.) at 727 & 730'.

730-754 Med-green poorly sorted lithic lapilli tuff / ~~tuff~~ bxa / Bud bxa. Varies between clast & matrix supported. Clast size varies from avg of 2mm to 1cm, to large chunks 3- >5 cm. Clasts sub angular, green to pinkish tan. Matrix mostly grey-grey, locally tan, locally contains minor 'wisps' of ? pumice? No veining or bedding, wisps at ~20° to c.a. Overall Fresh

754-776 Med-dk green lithic lapilli-tuff. (Bud) Matrix supported w/ overall 'grain' at 20°-30° to c.a. Clasts generally 1-2 cm, sub angular, very pale green to white & are oriented along textural grain. (~20% of rock is clasts) Matrix is med-dk green & has wavy (between wisps & flow-banded) texture.



No veining

ASSAYS

Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
703.5-707				.001	.3
707-712				<	.10
712-717				<	<
717-722				<	<
722-727				<	<

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	DESCRIPTION
780	102	Banding at 20-25 from c.a.	None	None		**776-802** (More clasts than above & matrix somewhat lighter green) Med-green lithic lapilli tuff (Bud) Matrix supported w/ overall grain at 20-25° from c.a. Clasts gen. 1-2 cm, angular to subang., pale green, dk grey, pink-tan, grey & black in color. ~ 25-35 % of rock is clasts. Matrix is med green & has wavy text (between wispy & flow-banded) Rare 4mm calcite veinlets.
790	91					
800	91	None				**802-820** (LBT) fine-grained med-grey-green tuff. Close-up view shows mottled grey green & med green text. 1' zone 812'-813 has 5% 2mm darker green spots. 809-820 minor 2-4mm py veinlets at 40° & less at 60° to c.a. Also minor 1-4 mm calcite veinlets. Rare splotches dissem py. Generally fresh & unfractured
810	115		Minor py	Minor py		
820	101					**820-836** (LBT) Same f.gr. tuff as above but weakly bleached & start seeing py veining & some thin fractures. Lt-med grey green. Close up can see 1mm amygdules in some layers - irregular shape, pale white-green w/ darker green rim. py veinlets 2-4mm wide, ~ 1 every 6" at ~40° to c.a. Lower 6' has mod. amount microfractures w/ dk green ? chlorite ?
830	89					
840	118					

ASSAYS

Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
816'-821				<	<
821'-826				.005	.16
826-831				.009	.11
831-836				<	<
836-840				.002	.10

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Veins Faults	MINERALIZATION	GRAPHIC LOG
850	95	None		Py veinlets	
860	100				
870	102				
880	102			Abt veinlets Pyr mostly at 45°	
890	100				
900	99				
910	100				

DESCRIPTION

[836-876] same as above (LBT), but increase alt'n & veining & wk crackle bx'n f.gr. light grey-green tuff, w-mod bleached, w/ abt fine fractures various orientations, ~ 2-6 fract/inch, w/ dk green ¿chlorite? on fractures. Pyr ± qtz veinlets 2-5mm wide at ~10°, 45°, 80° to c.a., ~ 1 veinlet every 3".
2-5mm Kaolinte (white) veinlets last 11' (865-876)

[876-916] increased alt'n, bx'n & veining ↓ (LBT) (Looks interesting)
f.gr. light grey to locally flesh/pink colored tuff, w/ tiny green specks after phenos, w-mod bleaching. Texture varies from strong crackle bxa to local 'dikes' of rotated clasts - appears to be hydrothermal bx'n. (4-10 fine fractures/inch)
Abt qtz-pyrite veining 2mm to 8mm wide, various orientations 45° 4 10° most common. Veining strongest 885-892', 903-906' ~ 2 veinlets/inch. Few drusy qtz vugs. Few spots 'Shotgun pyr' Fine fractures have dk green ¿chlorite? or FeOx.
Also some white Kaolinite veinlets, especially at 878-885', 903-905'
903-905 is ¿hydrothermal? bxa, clasts brick colored, sub ang, in milky qtz matrix

ASSAYS

Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
840-845				.002	.59
845-850				<	.71
850-855				<	.29
855.5-861				<	<
861-866				<	<
866-870				<	<
870-874.7				<	<
874.7-879.5				.005	<
879.5-884				<	<
884-889				.008	.24
889-894				.063	.35
894-898.8				.027	.10
898.8-902.5				.017	.20
902.5-906.5				.077	.30
906.5-912				.023	.24

HOLE # RL109

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG
920	100	None; Worms at 45-50; None	qtz-py	Pyr veinlets; qtz-pyr veinlets	
930	98			Abt qtz pyr veinlets	
940	99				
950	101				
960	101				
970	97			Intense Q-py veining; Abt Q-py veins	
980	100				

DESCRIPTION

916-925 'wormy texture' (mottled) - Fine grained tuff. (LBT)
Background is pale green, overprinted by 'worms' of pink tan
Worms oriented at 45°-55° to c.a. Close look can see
<3% tiny dk blue green specks - prob alt'd phenos
Few blobs 'shotgun' pyr. Weak crackle bx'n w/ green
& chlorite, pyr, or FeOx on thin fract's. Mod. pyr veining ± qtz,
predom at ~45° to c.a. 922'-924' stronger bx'n w/ milky qtz matrix

925-949 f.gr. tuff, (LBT) Generally flesh/pink colored. mod to str.
crackle bx'n w/ green & chlorite? on fine fractures, also green tiny
spots after phenos?, Abt 1 in 3" qtz-pyr veinlets 2-4 mm wide. Qtz is
med-dark grey. Veinlets at various orientations 5°, 45° & 85° most
common. Few blobs 'shotgun pyr'. Few drusy qtz cavities. 1' zones
of Hydroth? bx'a' w/ rotated clasts in white qtz matrix at 940', 944', 946'.
947-949 abt (2 per inch) tension fracts? - parallel veinlets w/
white milky qtz.

949-979 f.gr. tuff, (LBT) Mottled to banded flesh & pale green. Thin
Fractures / wk crackle bx'n, w/ local more broken bx'n zones & veinbx'as
Abundant veining - dark qtz & pyr, 2mm to 1cm wide, various
orientations, 45°, 30°, 60° to c.a. Few drusy qtz vugs, minor
blobs shotgun pyr.
Argillized zone 953-954'
At least 2 stage bx'n 966-967. Intense veining & local
vein bx'as 967-975. Stronger bx'n 975-979 -
Rotated angular clasts in white or grey qtz matrix... probably
hydrothermal.

ASSAYS

Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
		Au ✓	Au ✓		
912-916.5				L	.27
916.5-921				.067	.23
921-925.5				.023	.24
925.5-931				.001	L
931-936				.007	.17
936-940				.042	.17
940-944				.163	.44
944-948				.023	.41
948-953.2				.008	.24
953.2-957				.036	.27
957-962				.026	.31
962-967				.033	.34
967-971			.174	.167	L
971-975			.26	.580	.65
975-979.2			.093	.134	.76

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG	DESCRIPTION
990	110	None	Breccia Zone	qtz-pyr veinlets & silvery grey sulfide		**979 – 992** Strongly silicified hydroth, or tectonic? (SRF) breccia zone. 'Matrix' supported - matrix is med-grey qtz, 20-40% clasts, subangular; flesh, green & grey colors; clasts 'floating' in massive qtz. Cut by few white milky qtz veinlets (4-6 mm wide) w/ blebs of pyr, sheafs of marcasite & blebs of silvery-grey sulfide (?) (pyrargyrite?) Possible barite? veins, clear-white cubes
			gouge fault zone		clay gouge	
1000	100		Breccia Zone			**992 – 995** White clay gouge fault zone. Abt white kaolinite, dissem specks silvery grey metallic mineral.
1010	102					**995 – 1022** SRF strongly silicified hydroth? or tectonic? (→ protolith probably LBT?) breccia to crackle bxa zone. Mottled med-grey, dull flesh & pale grey-green colors. Abundant stringers & veinlets (2-4mm) grey qtz ± pyr or grey metallic sulfide, random orientations. Some vugs w/ drusy qtz & sheafs of marcasite. Few kaolinite veinlets. Generally a crackle bxa but locally have subang. clasts floating in grey qtz.
1020	97					
		gouge			gouge	**1022 – 1022.5** clay gouge, pale green/white
1030	100		Crackle Bxa	Qtz py ±kaol; DrQ +mc	gouge	**1022.5 – 1030** Silicified crackle & vein breccia (hydroth or tect?) pale greenish grey. Abt 2-4mm veinlets grey qtz ± pyr., various orientations.
						1030 – 1030.5 white clay gouge
1040	92				gouge	**1030.5 – 1046** Grey silicified & f.gr. tuff? (Dozer? LBT?) w/ abt thin fractures to locally crackle bx'd w/ brown & FeOx? on fractures. Cut by mod. amt 1-3mm veinlets qtz, qtz+py, locally replaced (?) by white kaolinite. Argillized rubble 1037 – 1038. Few drusy qtz vugs.
1050	96		Abt Fracs	Kaol		

ASSAYS Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
979 – 984			.073	.066	.76
984 – 988			.059	.056	9.15
988 – 992			.024	.023	15.43
992 – 995			.021	.022	1.53
995 – 1000			.005	.006	.67
1000 – 1005.5			.019	.011	2.05
1005.5 – 1010			.007	.005	L
1010 – 1015.5			.012	.010	.38
1015.5 – 1021				.004	.41
1021 – 1026				.003	.22
1026 – 1031				.004	1.10
1031 – 1036				.009	9.74
1036 – 1041				.001	.34
1041 – 1046				.001	.19
1046 – 1051				.005	L

HOLE # RL-109

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG
	105	None; Contact 80°	Abt frac's; 30°	Kaol. veins + Qtpy + green Kaol?	
1060					
1070	105	~80° to c.a		Diss py	
1080	95	Bedding 80° to c.a; 80°	None	None	
1090	105				
1100	95				
1110	100	Bedding 80° to c.a.; 80°		Drusy Qtz	
1120	98				

DESCRIPTION

1046-1056 increased bx'n. Silicified crackle bxa to locally matrix supported (1053-1054) & argillized rubble zones. Abt 1-2 mm Kaolinite-py veinlets & pink brown & green coloring along fractures.

1056-1066 decrease bx'n. Pale grey-green w/ tiny dark specks, Weakly silicified, bleached f.gr. tuff (LBT?). Abt fractures/ crackle bx'n. Abt small 1-3 mm stringers & veinlets white Kaol., minor Qtpy & dark green veinlts. fractures at various orientations, 1 set at 30° to c.a. 1065-1066: fault? bxa, silicified w/ qtz-py matrix. [Contact at 80° to c.a. w/ below]

1066-1073 Tuffaceous SS?/Epiclastic? Grey-green to tan, mod-well-sorted angular 1-2 mm clasts, including some black Jurassic-looking frag. 1st 3' is silicified

1073-1075 Green epiclastic? rock; argillized; 1-4 mm angular fragments, white, pale blue-green & black. Clast supported. Can crumble in hand. Some clasts replaced by py. Most of zone is just crumbly clayey rubble

1075-1108 Tuffaceous SS. (?) Brownish-grey fine to med grain SS; bedded, well sorted, Bedding at 75°-80° to c.a. Black, brown & white grains ~ 1/4 - 1/2 mm, Last 3' coarser; 1/2 - 1 mm

1108-1138 TR/Je black shale/slate (no fissility). Conformable Contact w/ above at 80° to C.a. Shale is silicified & contains some vuqp (1 in 6") w/ drusy qtz & thin milky qtz stringers/vnlts (wk)
More abt white qtz veining 1123-1132. CAVE-1134.

ASSAYS: Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
1051-1056				.003	.12
1056-1062				.001	L
1062-1068				.011	L
1068-1072				.005	.14
1072-1076				.004	.11
1076-1081				L	L
1081-1086				L	L
1086-1091				.002	L
1091-1096				L	L
1096-1102				L	L
1102-1107				.033	L
1107-1112				.002	L
1112-1117				.002	.22
1117-1122				.001	L

HOLE # RL-109

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG
		~80° to c.a.	None	Drusy Qtz	
1130	116				
	97			None	
1140	84	None			
	53	Fissility at 60° to c.a.			
1150	46				
VOID	25				
1160	60				
	67				
1170	44				
VOID					
	100	Bedding at 75-80° to c.a. 75-80°		Drusy Qtz + Mc	
1180				Milky qtz veins	
	105				
1190					

DESCRIPTION

1138-1142 Bleached zone? JR/TR slates/shales bleached to white/lt grey, but still hard. Just a massive f.gr. white rock - or is it a dike?

1142-1177 Black shale/slate rubble - <½" to 4" pieces. Some of the large chunks exhibit some fissility. ← 60° to c.a. Wk to no silicification. No veining.

1177-1191 TR/JR Black shale/slate. Layering/Bedding at 75-80° to c.a. Some bands w/ abt (primary) diss. pyr. Mod-abt 1-2mm vnlts w/ white kaolinite or lt grey qtz. Some (61 in 1') drusy qtz vugs w/ platy Mc.
1184-1190 abt irregular milky qtz veins / blobs, ½" - >1"

ASSAYS

Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
1122-1127				.012	.12
1127-1132				.013	2.69
1132-1138				.007	.36
1138-1142				<	<
1142-1147				.001	<
1147-1152				.002	<
1152-1156				.002	<
1156-1162				.004	.15
1162-1167.5				.001	.13
1167.5-1172				.003	.20
1172-1177				.004	.17
1177-1182				.004	.20
1182-1186				.002	.20
1186-1191				.006	.33

HOLE # RL-109

DEPTH (ft)	RECOVERY	Structure: Bd. Fol.	Structure: Faults	MINERALIZATION	GRAPHIC LOG
	54	Variable	None	None	
1200	69			Minor drusy Q	
1210	100				
1220	71				
	91				
1230	85			Vnlts & Drusy Q	
1240	100				
1247 T.D.	100				

DESCRIPTION

1191-1193 Dike? or SS?? Lt grey/white w/ 2% 1-3 mm ○ qtz, & 15% 1/2-1 mm py - gives speckled appearance. Contact w/ shale at ~80° to c.a.

1193 - 1247 T.D. Tr/Jr Black shale/slate. Bedding variable - 1200 syngenetic slumpins?

1193-1201 : Not silicified, no veining

1201-1225 : Wk silic., Banding/Bedding variable, gen. at 50°-60° to c.a. Few drusy Q vugs, Some bands w/ dissem py. (primary)

1225-1247 : Mod silicified. Abt small 1-3mm irregular stringers w/ white & lt grey qtz. Abt small drusy qtz cavities & veinlets.

ASSAYS

Sample No.	% Cu	% Pb	% Zn	oz/t Au	oz/t Ag
1191-1196			All ✓	.002	.74
1196-1201.5				.001	.25
1201.5-1205.5				.016	6.32
1205.5-1209.5				.001	.16
1209.5-1216				.006	.27
1216-1221.5				.002	<
1221.5-1227				.004	.33
1227-1232				.003	.21
1232-1237			.025	.014	<
1237-1242			.007	.007	.32
1242-1247			.008	.007	.16

PAGE 1 of 6

DH-109 STARTED 8.28.90 AM 551E, -60

SAMPLE RECOVERED	% RECOVERED	SAMPLE INTERVAL		LITHOLOGY
0-5	NO SAMPLE			5-352.3 GREY LITHIC TUFF LAPILLI (4mm-32mm clasts) + Vbx (~20% >32mm), GREY XL TUFF FRAGS COMMON, WEAK LIMONITE FRACTURE
5-18	<50%	5-12	187-192	
18-27	100%	12-18	192-197	
27-35	110%	18-22	197-202	
35-38	100%	22-27	202-207	
38-47	87%	27-31	207-212	
47-57	108%	31-35	212-217	5-146 WK IBL, WK LIMONITE FRACTURES
57-67	100%	35-41	217-222	
67-77	100%	41-47	222-227	
77-87	103%	47-52	227-232	
87-97	100%	52-57	232-237	140-287 WK CLAY ALTERATION, WK OX? Q Jcs FRACTURES
97-107 (5.0)	96%	57-62	237-242	
107-117	100%	62-67	242-247	
117-127	99%	67-72	247-252	
127-137	100%	72-77	252-257	
137-147	100%	77-82	257-262	
147-157	100%	82-87	262-267	
157-167	99%	87-92	267-272	
167-177	100%	92-97	272-277	
177-187	94%	97-102	277-282	
187-(6.1) 197	105%	102-107	282-287	
197-207	102%	107-112		
207-217	100%	112-117		
217-227	99%	117-122		
227-237	102%	122-127		
237-247	99%	127-132		
247-257	102%	132-137		
257-267	100%	137-142		
267-277	100%	142-147		
277-287	102%	147-152		
287-297	95%	152-157		
297-307	100%	157-162		
307-317	98%	162-167		
317-327	97%	167-172		
327-337	99%	172-177		
337-347	98%	177-182		
		182-187		

SPLIT

SPLIT

RL-109 PAGE 2 of 6

Sample Recovered	% Recovered
347-357	97%
357-367	100%
367-377	99%
379-387	102%
387-397	92%
397-407	100%
407-417	101%
417-427	102%
427-437	102%
437-447	98%
447-455	100%
455-465.5	100%
465.5-475.5	100%
475.5-485	9/9.5 = 95%
485-487	100%
487-497	100%
497-507	100%+
507-511	98%
511-517	5.9/6 = 98%
517-527	100%
527-537	100%
537-547	100%
547-557	100%
557-565	6.6/8 = 85
565-575	11.6/10 = 116% ??
575-585.5	10.2/10.5 = 97
585.5-595.5	100%
595.5-606	10/10.5 = 95%
606-616	100%+
616-624	7.6/8 = 95
624-634	100%+
634-644.5	10.2/10.5 = 95
644.5-654.5	100%
654.5-665	10/10.5 = 95 No Sample
665-675	100%+
675-681	100%
681-687	100%+
687-697	100%+

SPLIT

Sample Interval
475.5-480
480-487
487-492
492-497
497-502
502-507
507-511
511-517
517-522
522-527
527-532
532-537
537-542
542-547
547-552
552-557
557-565
565-570
570-575
575-580
580-585.5
585.5-590.5
590.5-595.5
595.5-601
601-606
606-611
611-616
616-619.2
619.2-624
624-629
629-654.5

SPLIT

Sample Interval
654.5-660
660-665
665-670

Lithology

352.3 CONTACT BETWEEN RED, GREY MATRIX COARSE PYROCLASTIC (LAPILLI-VB) CONTAINING GREY & TUFF FRAG AND/WITH BEDDED GREEN LITHIC LAPILLI TUFF (BBx)

352.3 - ?? BBx
GREEN & PURPLE MATRIX

437 - 475.5 FINE GRAIN GREY TO LT GREEN CRYSTAL TUFF

475.5 - 619.2
wht, lt to lt gm FGT w/ slg local silicified fault zones, local minor qtz sulfide veining
local slg sericite
542-543 silic fault zone
565-570 "

619.2 - Bed Bx
gm matrix lithic lapilli tuff w/ local Qtz sulfide veining

659 - 727 calcite veining to 2" at both extremes
local slg qtz sulfide veining to dissem @ 678'±

678.2 - 707
intense silicified, replaces BBx fault zone

697-707	100%		670-675
707-717	98%		675-681
717-727	100%+		681-687
727-737	99%	S	687-692
737-(3.7)		P	692-697
		L	697-673.2
		I	673.2-707
		T	707-712
			712-717
			717-722
			722-727

No sample 627-

RL-109

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SAMPLE INTERVAL	% RECOVERED			LITHOLOGY
(740) –				"BUD" Bx, GREEN CLASTS >32mm, "WISPY" TEXTURED, ≈ LOCAL FOLIA HORIZONS
(740-816) NO SAMPLE LOGGED				
(6.4) – 747.5	+6.4	96		
747.5 – 755	7.2/7.5 =	96		
755 – 763	8.2/8	100+%		
763 – 767	4.5/4	100+%		
767 – 777	9.9/10	99%		
777 – 787		102%		
787 – 797		91%		
797 – 807		91%		
807 – 816		115%		
816 – 826 (5.1)		101%		
826 – 836.5	9.3/10.5	89		
836.5 – 845	10.1/8.5	118%		
845 – 855.5	10/10.5	95		
855.5 – 866		100%		
866 – 876		102%		
876 – 886		102%		
886 – 896.5	10.5	100%		
896.5 – 907		99%		
907 – 917		102%		
917 – 927 (4.1)		100%		
927 – 937		98%		

816 – 821		
821 – 826	SPLIT	
826 – 831		
831 – 836		[816 – 876] WEAK BLEACHED
836 – 840		wk Q Sulfide VNING, FINE
840 – 845		GREEN CHACKLE Bx COMMON
845 – 850		
850 – 855.5		
855.5 – 861		[876 – BLEACHING WK MOD–
861 – 866	SPLIT	MOD, INCR. Q Sulfide VNING AND
866 – 870		Vr Bx ≈ Depth
870 – 874.7		
874.7 – 879.5		
879.5 – 884	SPLIT	
884 – 889		
889 – 894		
894 – 898.8		
898.8 – 902.5		[916.5 – 925.5]
902.5 – 906.5		worny texture (chicken pox)
906.5 – 912		
912 – 916.5		
916.5 – 921		
921 – 925.5		
925.5 – 931		
931 – 936		

Sample Recovered	% Recovered
7-947	99%
7-957	101%
7-967	101%
7-977	99%
77-987	100%
87-995	8.8/8 = 110%
95-1005.5 (8.7)	100%
1005.5-1015.5 (7.1)	102%
1015.5-1026	10.2/10.5 = 97
1026-1036.5 (5.2)	100%
1036.5-1038.5	2.3/2.5 = 92
1038.5-1047	8.2/8.5 = 96
1047-1056	8.9/9.0 99
1056-1066	105%
1066-1076	105%
1076-1086.5 (7.5)	95%
1086.5-1096.5	105%
1096.5-1107	10/10.5 95
1107-1117	100%
1117-1127	98%
1127 (2.4)	

Sample Interval	Lithology
936-940	[931-967] MOD BL (FLESH Cl.)
940-944	MOD Qsulfide VN ≈ Vugs,
944-948	MARCASITE DRUZY Q
948-953.2	
953.2-957	BEGIN FAULT ZONE
957-962	[967-979.2] MOD-STRC. BL.
962-967	(FLESH color) Bx'd ZONE
967-971	MOD-STR. Q Sulfide VNING
971-975	
975-979.2	
979.2-984	[979.2-992] INTENSELY Silic.
984-988	FAULT ZONE ≈ Tr clasts
988-992	
992-995	[992-995] STR. CLAY ALTERATION
995-1000	RUBBLE ZONES
1000-1005.5	
1005.5-1010	[995-1068]
1010-1015.5	Mod Arg, Mod Silic, faulting &
1015.5-1021	crackle bxa, few druzy
1021-1026	Qtz vugs, local clay zones
1026-1031	Silicified Bx common
1031-1036	
1036-1041	
1041-1046	1068-1106.3: Tr grey Fine-Coarse
1046-1051	sandstones
1051-1056	
1056-1062	
1062-1068	
1068-1072	
1072-1076	
1076-1081	
1081-1086	

CUT

CUT

CUT

RL-109

SAMPLE COVERED	% RECOVERED	
1127-1134 (2.4)	8.1/7	116%
1134-1137	2.9/3	97
1137-1141.5	3.8/4.5	84
1141.5-1147	2.9/5.5	53
1147-1152	2.3/5	46%
1152-1156	1/4 VOID IN RUN	25%
1156-1162	3.8/6.0	60
1162-1167.5	3.7/5.5	67
1167.5-1175.5	3.5/8.0 VOID IN RUN	44
1175.5-1186	100+%	
1186-1196	105%	
1196-1201.5	2.7/5.5	54
1201.5-1209.5	5.5/8.0	69
1209.5-1217	7.5/7.5	100
1217-1221.5	3.2/4.5	71
1221.5-1225	3.2/3.5	91
1225-1233	6.8/8.0	85
1233-1241	100%	
1241-1247 T.D.	100%	

SAMPLE INTERVAL	LITHOLOGY 1106.3-1247 T.D. JR
1086-1091	BIOTURBATED SHALES
1091-1096.5	WK-MOD DRUZY QTZ VUG
1096.5-1102	? VEINS,
1102-1107	
1107-1112	1139-1142 FELSITE DIKE
1112-1117	
1117-1122	1190-1193 FELSITE DIKE
1122-1127	1217-1218 " "
1127-1132	
1132-1138	
1138-1142	1201.5-1205.5
1142-1147	1205.5-1209.5
1147-1152	1209.5-1216
1152-1156	1216-1221.5
1156-1162	1221.5-1227
1162-1167.5	1227-1232
1167.5-1172	1232-1237
1172-1177	1237-1242
1177-1182	1242-1247 = T.D.
1182-1186	
1186-1191	
1191-1196	
1196-1201.5	

CUT

CUT

NEVADA GSI, INC.

PREP QUALITY ASSURANCE CERTIFICATION

Date 9/12/90

Company LAC MINERALS

Job # 8408

Geologist N. BREWER

No. Samples 77 CORE

Sample ID	Time	Bowl #	Weight	-150 Wt	% -150
RL-101C 1028-1033	90 sec		50.23	49.90	99.34
				-12 WT	% -12
CONE TEST			166.96	154.13	92.31

☑ PASSED ☐ FAILED

Explanation/Actions

Approved By Richard A. Grondin

Richard Grondin, Lab Manager

1498 Kleppe Lane • Sparks, Nevada 89431 • (702) 359-6600 • FAX: (702) 359-6605

NEVADA GSI, INC.

PREP QUALITY ASSURANCE CERTIFICATION

Date 9/19

Company LAC MINERALS

Job # 8446

Geologist NATE BREWER

No. Samples 93

Sample ID	Time	Bowl #	Weight	-150 Wt	% -150
1 RL-109C 12-18			50.12	48.93	99.3%
2 RL-109C 132-137			50.31	47.46	94.3
3 RL-109C 237-242			50.03	49.97	99.9%
4 RL-110C 555-560			50.88	50.25	98.8%
5 RL-107C 597-561			50.15	48.46	96.6%

☑ PASSED ☐ FAILED

Explanation/Actions

Approved By Richard A. Grondin

Richard Grondin, Lab Manager

1498 Kleppe Lane • Sparks, Nevada 89431 • (702) 359-6600 • FAX: (702) 359-6605

NEVADA GSI, INC.

PREP QUALITY ASSURANCE CERTIFICATION

Date 9/26/90

Company LAC MINERALS

Job # 8506

Geologist NATE BREWER

No. Samples 57

Sample ID	Weight	+150Wt	-150 Wt	% -150
1 RL-109 992-995	50.27	4.64	45.63	90.7%
2 RL-109 1096-1102	49.45	2.88	46.57	94.2%
3 RL-109 1216-1221.5	48.66	.34	48.32	99.3%

☑ PASSED ☐ FAILED

Explanation/Actions

Approved By Richard A. Grondin

Richard Grondin, Lab Manager

file:prep.frm

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NEVADA GSI, INC.

GEOCHEMICAL ANALYSIS REPORT

September 25, 1990

CUST. CODE: LOA
PROJECT: URBD
P.O. #: XXXX
LOT ID: 8446

GEOLOGIST: NATE BREWER
COPIES TO: KEN TULLAR
COMPANY: LAC MINERALS
ANALYSIS: FIRE ASSAY FOR GOLD AND SILVER, WITH AN A.A. FINISH.

	SAMPLE I.D.			Au o/t	Ag o/t
1.	RL-109C	5	12	0.002	-0.10
2.	M-30			0.088	-0.10
3.	RL-109C	12	18	0.001	-0.10
4.	RL-109C	18	22	-0.001	-0.10
5.	RL-109C	22	27	-0.001	-0.10
6.	RL-109C	27	31	-0.001	-0.10
7.	RL-109C	31	35	-0.001	-0.10
8.	RL-109C	35	41	0.001	-0.10
9.	RL-109C	41	47	-0.001	-0.10
10.	RL-109C	47	52	-0.001	-0.10
11.	RL-109C	52	57	-0.001	-0.10
12.	RL-109C	57	62	-0.001	-0.10
13.	RL-109C	62	67	-0.001	-0.10
14.	RL-109C	67	72	-0.001	-0.10
15.	RL-109C	72	77	-0.001	-0.10
16.	RL-109C	77	82	-0.001	-0.10
17.	RL-109C	82	87	-0.001	-0.10
18.	RL-109C	87	92	0.001	-0.10
19.	RL-109C	92	97	0.001	-0.10
20.	RL-109C	97	102	-0.001	-0.10
21.	RL-109C	102	107	0.001	-0.10
22.	M-31			0.102	0.13
23.	RL-109C	107	112	0.001	-0.10
24.	RL-109C	112	117	0.002	0.11
25.	RL-109C	117	122	-0.001	0.10
26.	RL-109C	122	127	-0.001	0.10
27.	RL-109C	127	132	0.001	-0.10
28.	RL-109C	132	137	-0.001	-0.10
29.	RL-109C	137	142	-0.001	-0.10
30.	RL-109C	142	147	-0.001	-0.10
31.	RL-109C	147	152	0.001	-0.10
32.	RL-109C	152	157	-0.001	-0.10
33.	RL-109C	157	162	0.004	-0.10

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	SAMPLE I.D.			Au o/t	Ag o/t
34.	RL-109C	162	167	0.001	-0.10
35.	RL-109C	167	172	0.004	-0.10
36.	RL-109C	172	177	0.002	-0.10
37.	RL-109C	177	182	0.008	-0.10
38.	RL-109C	182	187	-0.001	-0.10
39.	RL-109C	187	192	-0.001	-0.10
40.	RL-109C	192	197	-0.001	-0.10
41.	RL-109C	197	202	0.002	-0.10
42.	M-32			0.042	-0.10
43.	RL-109C	202	207	-0.001	-0.10
44.	RL-109C	207	212	0.002	0.11
45.	RL-109C	212	217	0.003	-0.10
46.	RL-109C	217	222	0.002	-0.10
47.	RL-109C	222	227	0.002	-0.10
48.	RL-109C	227	232	0.005	0.13
49.	RL-109C	232	237	-0.001	-0.10
50.	RL-109C	237	242	-0.001	-0.10
51.	RL-109C	242	247	-0.001	0.10
52.	RL-109C	247	252	-0.001	-0.10
53.	RL-109C	252	257	-0.001	-0.10
54.	RL-109C	257	262	-0.001	0.12
55.	RL-109C	262	267	-0.001	-0.10
56.	RL-109C	267	272	0.001	-0.10
57.	RL-109C	272	277	-0.001	-0.10
58.	RL-109C	277	282	-0.001	-0.10
59.	RL-109C	282	287	-0.001	-0.10
60.	RL-109C	816	821	-0.001	-0.10
61.	RL-109C	821	826	0.005	0.16
62.	M-33			0.031	0.15
63.	RL-109C	826	831	0.009	0.11
64.	RL-109C	831	836	-0.001	-0.10
65.	RL-109C	836	840	0.002	0.10
66.	RL-109C	840	845	0.002	0.59
67.	RL-109C	845	850	-0.001	0.71
68.	RL-109C	850	855.5	-0.001	0.29
69.	RL-109C	855	861	-0.001	-0.10
70.	RL-109C	861	866	-0.001	-0.10
71.	RL-109C	866	870	-0.001	-0.10
72.	RL-109C	870	874.7	-0.001	-0.10
73.	RL-110C	555	560	-0.001	-0.10
74.	RL-110C	560	565	-0.001	-0.10
75.	RL-110C	565	570	-0.001	-0.10
76.	RL-110C	570	575	-0.001	-0.10
77.	RL-110C	575	580	-0.001	0.16
78.	RL-110C	580	585	-0.001	-0.10
79.	RL-107C	552	557	-0.001	-0.10
80.	RL-107C	557	562	0.001	-0.10
81.	RL-107C	562	567	0.007	-0.10

	SAMPLE I.D.			Au o/t	Ag o/t
82.	M-34			0.040	-0.10
83.	RL-107C	567	572	-0.001	0.10
84.	RL-107C	572	577	-0.001	-0.10
85.	RL-107C	577	582	-0.001	-0.10
86.	RL-107C	582	587	-0.001	-0.10
87.	RL-107C	587	592	-0.001	-0.10
88.	RL-107C	592	597	0.007	-0.10
89.	RL-107C	601	605	0.002	-0.10
90.	RL-107C	605	610.5	0.005	-0.10
91.	RL-107C	610.5	615	0.005	-0.10
92.	RL-107C	615	619	0.002	0.13
93.	RL-107C	619	623	0.006	0.21
94.	RL-107C	623	627	0.001	-0.10
95.	RL-107C	627	632	0.002	-0.10
96.	RL-107C	632	637	0.001	-0.10
97.	RL-107C	597	~~561~~ 601	-0.001	-0.10
98.	M-35			0.280	0.15

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This report reviewed and approved by:

Richard A. Grondin

Richard Grondin, Laboratory Director

OCT 12 1990

NEVADA GSI, INC.

GEOCHEMICAL ANALYSIS REPORT

October 9, 1990

CUST. CODE: LOA
PROJECT: URBD
P.O. #: XXXX
LOT I.D. #: 8506

GEOLOGIST: NATE BREWER
COPIES TO: KEN TULLAR
COMPANY: LAC MINERALS
ANALYSIS: FIRE ASSAY FOR GOLD AND SILVER, WITH AN A.A. FINISH. GOLD, 1 ASSAY TON GRAVIMETRIC. (CHECKS)

	SAMPLE I.D.			Au o/t	Ag o/t	Checks Au o/t	Checks Au o/t
1.	RL-109	967	971	0.107	-0.10	0.174	-
2.		M-93		0.018	-0.10	0.029	-
3.	RL-109	971	975	0.580	0.65	0.260	0.306
4.	RL-109	975	979.2	0.134	0.76	0.093	-
5.	RL-109	979.2	984	0.066	0.76	0.073	-
6.	RL-109	984	988	0.056	9.15	0.059	-
7.	RL-109	988	992	0.023	15.43	0.024	-
8.	RL-109	992	995	0.022	1.53	0.021	-
9.	RL-109	995	1000	0.006	0.67	0.005	-
10.	RL-109	1000	1005.5	0.011	2.05	0.019	-
11.	RL-109	1005.5	1010	0.005	-0.10	0.007	-
12.	RL-109	1010	1015.5	0.010	0.38	0.012	-
13.	RL-109	1015.5	1021	0.004	0.41	-	-
14.	RL-109	1021	1026	0.003	0.22	-	-
15.	RL-109	1026	1031	0.004	1.10	-	-
16.	RL-109	1031	1036	0.009	9.74	-	-
17.	RL-109	1036	1041	0.001	0.34	-	-
18.	RL-109	1041	1046	0.001	0.19	-	-
19.	RL-109	1046	1051	0.005	-0.10	-	-
20.	RL-109	1051	1056	0.003	0.12	-	-
21.	RL-109	1056	1062	0.001	-0.10	-	-
22.		M-94		0.082	0.16	-	-
23.	RL-109	1062	1068	0.011	-0.10	-	-
24.	RL-109	1068	1072	0.005	0.14	-	-
25.	RL-109	1072	1076	0.004	0.11	-	-
26.	RL-109	1076	1081	-0.001	-0.10	-	-
27.	RL-109	1081	1086	-0.001	-0.10	-	-
28.	RL-109	1086	1091	0.002	-0.10	-	-
29.	RL-109	1091	1096	-0.001	-0.10	-	-
30.	RL-109	1096	1102	-0.001	-0.10	-	-
31.	RL-109	1102	1107	0.033	-0.10	-	-
32.	RL-109	1102	1112	0.002	-0.10	-	-
33.	RL-109	1112	1117	0.002	0.22	-	-
34.	RL-109	1117	1122	0.001	-0.10	-	-

TCS

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LAC MINERALS
LOT I.D #: 8506

	SAMPLE I.D.			Au o/t	Ag o/t	Checks Au o/t	Checks Au o/t
35.	RL-109	1122	1127	0.012	0.12	-	-
36.	RL-109	1127	1132	0.013	2.60	-	-
37.	RL-109	1132	1138	0.007	0.36	-	-
38.	RL-109	1138	1142	-0.001	-0.10	-	-
39.	RL-109	1142	1147	0.001	-0.10	-	-
40.	RL-109	1147	1152	0.002	-0.10	-	-
41.	RL-109	1152	1156	0.002	-0.10	-	-
42.		M-96		0.020	-0.10	-	-
43.	RL-109	1156	1162	0.004	0.15	-	-
44.	RL-109	1162	1167.5	0.001	0.13	-	-
45.	RL-109	1167.5	1172	0.003	0.20	-	-
46.	RL-109	1172	1177	0.004	0.17	-	-
47.	RL-109	1177	1182	0.004	0.20	-	-
48.	RL-109	1182	1186	0.002	0.20	-	-
49.	RL-109	1186	1191	0.006	0.33	-	-
50.	RL-109	1191	1196	0.002	0.74	-	-
51.	RL-109	1196	1201.5	0.001	0.25	-	-
52.	RL-109	1201.5	1205.5	0.016	6.32	-	-
53.	RL-109	1205.5	1209.5	0.001	0.16	-	-
54.	RL-109	1209.5	1216	0.006	0.27	-	-
55.	RL-109	1216	1221.5	0.002	-0.10	-	-
56.	RL-109	1221.5	1227	0.004	0.33	-	-
57.	RL-109	1227	1232	0.003	0.21	-	-
58.	RL-109	1232	1237	0.014	-0.10	0.015	-
59.	RL-109	1237	1242	0.007	0.32	0.007	-
60.	RL-109	1242	1247	0.007	0.16	0.008	-
61.		M-97		0.017	-0.10	-	-

==========

This report reviewed and approved by:

Richard A. Grondin

Richard Grondin, Laboratory Director

LAC MINERALS
LOT I.D #: 8506

	SAMPLE I.D.			Au o/t	Ag o/t	Checks Au o/t	Checks Au o/t
35.	RL-109	1122	1127	0.012	0.12	-	-
36.	RL-109	1127	1132	0.013	2.60	-	-
37.	RL-109	1132	1138	0.007	0.36	-	-
38.	RL-109	1138	1142	-0.001	-0.10	-	-
39.	RL-109	1142	1147	0.001	-0.10	-	-
40.	RL-109	1147	1152	0.002	-0.10	-	-
41.	RL-109	1152	1156	0.002	-0.10	-	-
42.		M-96		0.020	-0.10	-	-
43.	RL-109	1156	1162	0.004	0.15	-	-
44.	RL-109	1162	1167.5	0.001	0.13	-	-
45.	RL-109	1167.5	1172	0.003	0.20	-	-
46.	RL-109	1172	1177	0.004	0.17	-	-
47.	RL-109	1177	1182	0.004	0.20	-	-
48.	RL-109	1182	1186	0.002	0.20	-	-
49.	RL-109	1186	1191	0.006	0.33	-	-
50.	RL-109	1191	1196	0.002	0.74	-	-
51.	RL-109	1196	1201.5	0.001	0.25	-	-
52.	RL-109	1201.5	1205.5	0.016	6.32	-	-
53.	RL-109	1205.5	1209.5	0.001	0.16	-	-
54.	RL-109	1209.5	1216	0.006	0.27	-	-
55.	RL-109	1216	1221.5	0.002	-0.10	-	-
56.	RL-109	1221.5	1227	0.004	0.33	-	-
57.	RL-109	1227	1232	0.003	0.21	-	-
58.	RL-109	1232	1237	0.014	-0.10	0.015	-
59.	RL-109	1237	1242	0.007	0.32	0.007	-
60.	RL-109	1242	1247	0.007	0.16	0.008	-
61.		M-97		0.017	-0.10	-	-

==========

This report reviewed and approved by:

Richard A. Grondin

Richard Grondin, Laboratory Director

LAC MINERALS
LOT ID # 8408

	SAMPLE I.D.			Au o/t	Ag o/t	Checks Au o/t
29	RL-104C	522	527	0.056	0.24	-
30	RL-109C	475.5	480	-0.001	-0.10	-
31	RL-109C	480	487	0.001	-0.10	-
32	RL-109C	487	492	-0.001	-0.10	-
33	RL-109C	492	497	0.001	-0.10	-
34	RL-109C	497	502	-0.001	-0.10	-
35	RL-109C	502	507	0.004	-0.10	-
36	RL-109C	507	511	0.008	-0.10	-
37	RL-109C	511	517	0.001	-0.10	-
38	RL-109C	517	522	0.001	-0.10	-
39	RL-109C	522	527	0.004	0.15	-
40	RL-109C	527	532	0.003	0.13	-
41	RL-109C	532	537	0.004	-0.10	
42		M-88		0.053	-0.10	-
43	RL-109C	537	542	0.003	-0.10	-
44	RL-109C	542	547	0.007	-0.10	-
45	RL-109C	547	552	0.003	-0.10	-
46	RL-109C	552	557	0.003	-0.10	-
47	RL-109C	557	565	0.050	0.14	-
48	RL-109C	565	570	0.003	-0.10	-
49	RL-109C	570	575	0.001	-0.10	-
50	RL-109C	575	580	0.002	-0.10	-
51	RL-109C	580	585.5	0.001	0.10	-
52	RL-109C	585.5	590.5	-0.001	-0.10	-
53	RL-109C	590.5	595.5	0.001	-0.10	-
54	RL-109C	595.5	601	0.049	-0.10	-
55	RL-109C	601	606	0.007	0.17	-
56	RL-109C	606	611	0.012	0.24	-
57	RL-109C	611	616	0.019	0.18	-
58	RL-109C	616	619.2	0.011	-0.10	-
59	RL-109C	619.2	624	0.003	0.12	-
60	RL-109C	624	629	-0.001	-0.10	-
61	RL-109C	654.5	660	0.001	0.15	-
62		M-89		0.280	-0.10	0.250
63	RL-109C	660	665	0.024	-0.10	-
64	RL-109C	665	670	-0.001	0.24	-
65	RL-109C	670	675	0.007	0.12	-
66	RL-109C	675	681	0.007	-0.10	-
67	RL-109C	681	687	0.005	-0.10	-
68	RL-109C	687	692	0.002	-0.10	-
69	RL-109C	692	697	0.002	-0.10	-
70	RL-109C	697	703.3	0.020	0.18	-
71	RL-109C	703.3	707	0.001	0.30	-
72	RL-109C	707	712	-0.001	0.10	-
73	RL-109C	712	717	-0.001	-0.10	-

LAC MINERALS
LOT ID # 8408

	SAMPLE I.D.			Au o/t	Ag o/t	Checks Au o/t
29	RL-104C	522	527	0.056	0.24	-
30	RL-109C	475.5	480	-0.001	-0.10	-
31	RL-109C	480	487	0.001	-0.10	-
32	RL-109C	487	492	-0.001	-0.10	-
33	RL-109C	492	497	0.001	-0.10	-
34	RL-109C	497	502	-0.001	-0.10	-
35	RL-109C	502	507	0.004	-0.10	-
36	RL-109C	507	511	0.008	-0.10	-
37	RL-109C	511	517	0.001	-0.10	-
38	RL-109C	517	522	0.001	-0.10	-
39	RL-109C	522	527	0.004	0.15	-
40	RL-109C	527	532	0.003	0.13	-
41	RL-109C	532	537	0.004	-0.10	
42		M-88		0.053	-0.10	-
43	RL-109C	537	542	0.003	-0.10	-
44	RL-109C	542	547	0.007	-0.10	-
45	RL-109C	547	552	0.003	-0.10	-
46	RL-109C	552	557	0.003	-0.10	-
47	RL-109C	557	565	0.050	0.14	-
48	RL-109C	565	570	0.003	-0.10	-
49	RL-109C	570	575	0.001	-0.10	-
50	RL-109C	575	580	0.002	-0.10	-
51	RL-109C	580	585.5	0.001	0.10	-
52	RL-109C	585.5	590.5	-0.001	-0.10	-
53	RL-109C	590.5	595.5	0.001	-0.10	-
54	RL-109C	595.5	601	0.049	-0.10	-
55	RL-109C	601	606	0.007	0.17	-
56	RL-109C	606	611	0.012	0.24	-
57	RL-109C	611	616	0.019	0.18	-
58	RL-109C	616	619.2	0.011	-0.10	-
59	RL-109C	619.2	624	0.003	0.12	-
60	RL-109C	624	629	-0.001	-0.10	-
61	RL-109C	654.5	660	0.001	0.15	-
62		M-89		0.280	-0.10	0.250
63	RL-109C	660	665	0.024	-0.10	-
64	RL-109C	665	670	-0.001	0.24	-
65	RL-109C	670	675	0.007	0.12	-
66	RL-109C	675	681	0.007	-0.10	-
67	RL-109C	681	687	0.005	-0.10	-
68	RL-109C	687	692	0.002	-0.10	-
69	RL-109C	692	697	0.002	-0.10	-
70	RL-109C	697	703.3	0.020	0.18	-
71	RL-109C	703.3	707	0.001	0.30	-
72	RL-109C	707	712	-0.001	0.10	-
73	RL-109C	712	717	-0.001	-0.10	-

LAC MINERALS
LOT ID # 8408

	SAMPLE I.D.			Au o/t	Ag o/t	Checks Au o/t
29	RL-104C	522	527	0.056	0.24	-
30	RL-109C	475.5	480	-0.001	-0.10	-
31	RL-109C	480	487	0.001	-0.10	-
32	RL-109C	487	492	-0.001	-0.10	-
33	RL-109C	492	497	0.001	-0.10	-
34	RL-109C	497	502	-0.001	-0.10	-
35	RL-109C	502	507	0.004	-0.10	-
36	RL-109C	507	511	0.008	-0.10	-
37	RL-109C	511	517	0.001	-0.10	-
38	RL-109C	517	522	0.001	-0.10	-
39	RL-109C	522	527	0.004	0.15	-
40	RL-109C	527	532	0.003	0.13	-
41	RL-109C	532	537	0.004	-0.10	
42		M-88		0.053	-0.10	-
43	RL-109C	537	542	0.003	-0.10	-
44	RL-109C	542	547	0.007	-0.10	-
45	RL-109C	547	552	0.003	-0.10	-
46	RL-109C	552	557	0.003	-0.10	-
47	RL-109C	557	565	0.050	0.14	-
48	RL-109C	565	570	0.003	-0.10	-
49	RL-109C	570	575	0.001	-0.10	-
50	RL-109C	575	580	0.002	-0.10	-
51	RL-109C	580	585.5	0.001	0.10	-
52	RL-109C	585.5	590.5	-0.001	-0.10	-
53	RL-109C	590.5	595.5	0.001	-0.10	-
54	RL-109C	595.5	601	0.049	-0.10	-
55	RL-109C	601	606	0.007	0.17	-
56	RL-109C	606	611	0.012	0.24	-
57	RL-109C	611	616	0.019	0.18	-
58	RL-109C	616	619.2	0.011	-0.10	-
59	RL-109C	619.2	624	0.003	0.12	-
60	RL-109C	624	629	-0.001	-0.10	-
61	RL-109C	654.5	660	0.001	0.15	-
62		M-89		0.280	-0.10	0.250
63	RL-109C	660	665	0.024	-0.10	-
64	RL-109C	665	670	-0.001	0.24	-
65	RL-109C	670	675	0.007	0.12	-
66	RL-109C	675	681	0.007	-0.10	-
67	RL-109C	681	687	0.005	-0.10	-
68	RL-109C	687	692	0.002	-0.10	-
69	RL-109C	692	697	0.002	-0.10	-
70	RL-109C	697	703.3	0.020	0.18	-
71	RL-109C	703.3	707	0.001	0.30	-
72	RL-109C	707	712	-0.001	0.10	-
73	RL-109C	712	717	-0.001	-0.10	-

LAC MINERALS
LOT ID # 8408

	SAMPLE I.D			Au o/t	Ag o/t	Checks Au o/t
74	RL-109C	717	722	-0.001	-0.10	-
75	RL-109C	722	727	-0.001	-0.10	-
76	RL-107C	956	959.7	0.001	-0.10	-
77	RL-107C	959.7	965	0.004	-0.10	-
78	RL-107C	965	970	0.002	-0.10	-
79	RL-107C	970	974.5	0.001	-0.10	-
80	RL-107C	974.5	980.5	0.003	-0.10	-
81	RL-107C	980.5	984.5	0.003	-0.10	-
82	M-90			0.098	-0.10	-

THIS REPORT REVIEWED AND APPROVED BY:

Richard A. Grondin

RICHARD GRONDIN, LABORATORY DIRECTOR

LAC MINERALS
LOT I.D. #: 8503

	SAMPLE I.D.			Au o/t	Ag o/t
83.	RL-107	816	820	0.006	0.19
84.	RL-107	820	825	0.007	0.35
85.	RL-107	825	830	0.003	0.14
86.	RL-107	830	835	-0.001	0.20
87.	RL-107	835	840	0.003	0.18
88.	RL-107	840	845	0.025	-0.10
89.	RL-107	845	850	0.005	0.19
90.	RL-107	850	855	0.014	0.19
91.	RL-107	855	860	0.009	0.34
92.	RL-107	860	865	0.005	-0.10
93.	RL-109	874.7	879.5	0.005	-0.10
94.	RL-109	879.5	884	-0.001	-0.10
95.	RL-109	884	889	0.008	0.24
96.	RL-109	889	894	0.063	0.35
97.	RL-109	894	898.8	0.027	0.10
98.	RL-109	898.8	902.5	0.017	0.20
99.	RL-109	902.5	906.5	0.077	0.30
100.	RL-109	906.5	912	0.023	0.24
101.	RL-109	912	916.5	-0.001	0.27
102.		M-86		0.077	0.23
103.	RL-109	916.5	921	0.067	0.23
104.	RL-109	921	925.5	0.023	0.24
105.	RL-109	925.5	931	0.001	-0.10
106.	RL-109	931	936	0.007	0.17
107.	RL-109	936	940	0.042	0.17
108.	RL-109	940	944	0.163	0.44
109.	RL-109	944	948	0.023	0.41
110.	RL-109	948	953.2	0.008	0.24
111.	RL-109	953	957	0.036	0.27
112.	RL-109	957	962	0.026	0.31
113.	RL-109	962	967	0.033	0.34
114.		M-88		0.054	0.29

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This report reviewed and approved by:

Richard Grondin, Laboratory Director

RL 109 Summary Log

0 - 128 (C1C) Chocolate in chocolate, lithic lapilli tuff, matrix same as clasts; f.gr. porphyritic - tiny biotite & 1-2mm plag or sanidine phenos, poor sorting, no bedding
74-128 mod argillized w/ some FeOx-barite units.

128 - 352 (C2C) 2 clast Chocolate lithic lapilli tuff : 1) clasts of porphyritic chocolate tuff & 2) blue-green to brown (when fresh) sometimes banded, softer clasts - pumice?

- alt'n decreases

137 - 290 bleached, matrix red-grey to green-grey
290 - 321 pumice? clasts tan w/ incipient alt'n to green as above
321 - 352 fairly fresh, red brown color

352 - 433 'Upper Bud' Bedded green lithic lapilli tuff, clast to barely matrix supported
Bedding at 45° to c.a.

433 - 437 Erosion rip-up zone : bedded f.gr. green tuff w/ layers angular grey (Tmb) clasts

437 - 539 (Tmb) Grey f.g. porphyritic tuff, tiny mafic phenos & 3-5% white 1-3mm plag/sanidine phenos

RL- 109 cont:

437- 539 cont:

437- 464: fairly fresh

464- 480 proplyl.; biotite → chlorite, plag → calcite

increase alt'n

480 -506 prop + arg; plag → kaol, biotite → chlorite or py; green waxy (kaol??) veinlets

506- 539 increased alt'n & veining plag to kaol + py, abt thin qtz, qtz + py veinlets at 40° to c.a., green waxy veinlets.

539 -546 Hydrothermal? bxa zone in Tmb, rotated fractured clasts in grey silica matrix. Abt grey qtz veining & drusy qtz cavities

546- 619.5 Tmb f.gr. porph tuff.

546-598 Thin fract w/ grey qtz throughout & green kaol?

598-619.5 Abt white kaol ± ~~Al~~ Mc

619.5- 624 Fault zone?? Argillized bxa zone, matrix (green clay) supported

RL-109 cont:

624 - 703 Bud Bxa / lithic lapilli tuff, bedded, green, mod sorted 'bedding' at 10-30° to c.a. 'wispy' texture 658-703

703-706 Silicified zone - chert-like ; fault?

706 - 802 Bud Bxa / lithic lapilli tuff bedding wisps at 10-30° to c.a. , matrix supported wispy to banded text 206-730, 754-802

802-979 LBT fine-grained tuff; no phenos increase alt'n ↓

802-876 grey green , increase fractures downward ,

876-916 incr alt'n, bx'n & veining ; lt grey to pink color, crackle bxa to rotated clast bxa (hydroth?) Abt qtz-py , some Kaol veining

916-925 wormy/mottled green & tan

925-979 crackle bxa to rotated clast (hydroth) w/ abt veining — intense 967-975.

979 - 1068 Silicified bxa zone ; crackle, vein & qtz matrix w/ floating clasts 979-992 bxa's. Local clay gouge zones

4

RL-109

1068 - 1108 Tr ? SS Tuffaceous Sandstone?
(w/ green epiclastic 1073-1075)
SS - bedded & well sorted, generally tan-grey

1108 - 1191 Jr / Tr Shales
Silicified 1108 - 1138